

3 717

F. R. Fosberg

Collection Book

Ms. 76

31155 - 31782

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(January 15, 1950 - February 23, 1950)

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look up Aet.

32039-40

32041 - 52

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look on Rota
map for

loc. of
airstrip

and

Meringa plantation
on road up to
airstrip.

Write her kinds of labels that
it may be necessary to bring
to Dupont for replacing
bad ones, a missing one.

PH, 6.5 soil on lava
7 much
7 ash in canyon
7.5 ash in canyon

Begin with
no. 31155

719 E

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A BOORUM & PEASE PRODUCT

Jan. 15 Mokuape Peninsula,
n. side

Pyramid rock 80° W. of N.

High pt. Moku Mann 47° E. of N.

Site #1 sea level.

flat coral rock
no soil, awash with
sea water, belt about
10-m wide or less. perfectly
flat in general topography
"solution bench" awash
with water and top roughness
almost closed veg.

largely brown algae,
rather unevenly closed,
Sargassum (2 sp.), Ectocarpus,
Lithothrix (?), Padina,
and another brown alga,
dominants, but in
different proportions
on inner and outer
parts of belt, no place
with more than 3-4
actually dominant.

2 layers, 1-2 cm, other, 4-10
cm.

2-3 m. + strand

Site #2 Flat but rough
coral rock with gravelly
soil in pockets,
mixture of "black sand"
and coral limestone debris
Very sparse stand
of Sesuvium portulacastrum
- nanophyll, succulent
leaves, herbaceous stems
1 layer 5 cm. thick
(no associated species except
ecological belt | occasional
haenula from next
belt above, not enough
to constitute a shrub
layer, even scattered.

Belt about 10-15 m.
wide on limestone
bench just at foot
of steep bluffs

Obviously very frequently
subject to spray.

Jan. 19 Looked around at night. Tried to check occurrences reported in Pac. Is. 3:338-9, 1949. Of the plants seen that were previously reported only *Eleusine indica* deserves any note. It is abundant rather than rare.

31155 *Setaria verticillata* Beauv.
occasional around buildings

56 *Eleusine indica* (L.) Gaertn.
abundant around edges of air strip and around paths.

57 *Pandanus tectorius* Paul.
planted around houses (1 plant)

58 *Nicotiana glauca* Graham
1 plant seen, planted

59 *Coccolobis uvifera* L.
commonly planted around houses

60 *Schinus terebinthifolius* Raddi
planted around houses

unusually robust form, culms spreading from root crown.

small plant 1 m. tall.

shrub 1 1/2 m. tall, leaves pale glaucous green, sub-fleshy; flowers yellow.
sterile shrubs 1-2 m. tall.
sterile shrub 1 m. tall.

Jan. 19 general inspection of islet with attention to vegetation and to species unrecorded from Atoll; changes since 1946.

The island is still barren-looking, though considerably more luxuriant than in 1946. Principal conspicuous vegetation is *Messerschmidia*, average trees of which are 3-4 m. tall. Shrub layer of *Scaevola* (sometimes forming small tree).

Wedelia, *Pluchea indica* ~~taberna~~ (common), *P. odorata* (common locally).

Pioneer herb layer by far the most diversified and widespread - found everywhere around establishments, air strip, etc. Esp. on lagoon beach a sterile grass that must be *Paspalum vaginatum* covers large areas almost exclusively. In the wetter places away from the beach *Cyperus ferox* (?) forms dense patches.

On freshly exposed coral, *Phyllanthus niruri* and *Euphorbia hirta* come up in

Kodachrome roll 1 B + W. roll A.

1-2

growth of *Wedelia biflora* on recently disturbed ground

3-4

Wedelia biflora plant

5-6

same, closer.

7-8

strip of *Messerschmidia* and *Scaevola* e. of air strip, showing some wind-shear effects.

9-14

5-7

pioneer vegetation of shallow-rooted plants on new coral rubble surface.

15-16

8

Well-grown *Messerschmidia* grove about center of islet.

great abundance. In most weedy patches *Cenchrus*, *Chloris inflata*, *Cenchrus echinatus*, *Fimbristylis cymosa*.

Conyza canadensis + *C. bonariensis* are common toward av. end.

The burr of *Cenchrus* is a serious annoyance.

- 3/1161 *Digitaria pruriens* var. *microbachne*
locally common in waste spots
- 5 62 *Euphorbia heterophylla*
occasional as weed or
garden plant
- 2 63 *Eclipta alba* (L.) Hassk.
edge of marshy weedy place
- 1 64 *Lonchocarpus oleaceus* L.
weedy coral flat near air strip
- 5 65 *Tridax procumbens*
common on weedy coral flat
near air strip
- 5 66 *Euphorbia hypericifolia* L.
occasional on weedy
coral flat near air strip
- 1 67
one vigorous clump on
weedy coral flat near airstrip
- 3 68 *Conyza bonariensis*
common on weedy coral flat
near airstrip
- 5 69 *Conyza canadensis*
occasional on weedy coral flat
near airstrip
- 5 70 *Pluchea odorata*
common, in places abundant,
in vicinity of air strip
- 3 71 *Conyza bonariensis* (L.)
occasional around buildings
- 5 72 *Cyperus ~~per~~ odoratus* L.
abundant in wet places
- 2 73 *Phyllanthus ~~sp.~~ ^{amatus Schum. + Th.}* L. det. G.
abundant almost everywhere

- erect, bushy herb 1 m.
tall, lower 2/3 of floral
bracts scarlet, distal
third green.
prostrate; rays white.
- erect
- prostrate and branched
at base, scapes ascending,
- erect, tips nodding;
sap milky.
- over 1 m. tall, sterile.
- erect, pappus dull whitish;
flowers white.
- erect, flowers white.
- shrub 2 m. tall,
aromatic; flowers
pinkish white.
- flowers white; pappus
whitish.
- caespitose, stems
bluntly triangular.
- erect, this tall in
protected spots.

- 31174 *Amaranthus spinosus* L.
occasional in sheltered moist place
- 76 *Leucaena glauca*
one small shrub seen, in nursery, probably planted.
- 77 *Solanum nigrum* L.
weedy edge of nursery plot
- 78 *Amaranthus dubius* Mart.
weedy edge of nursery plot
- 79 *Pluchea indica*
common generally
- 80 *Solanum nigrum* L.
weedy disturbed ground
- 81
planted in nursery
- 82 *Stachytarpheta ~~javanica~~ ^{indica}*
planted in nursery
(but seen elsewhere as weed)
- 83
planted in nursery
- 84 *Leoparia dubis*
abundant in weedy wet place
- 85 *Amaranthus dubius* Mart.
common locally in coconut grove.
- 86 *Emilia javanica* (Burm. f.) Rob.
common locally in weedy places
- 87 *Chloris inflata*
common or abundant generally
std. on p. 14

- erect branched herb,
stems bronzed by
red mottling.
shrub 1 m. tall, branched.
- tangled bushy herb, ^{stems green;}
berries black, flowers white.
- erect ~~shrub~~ bushy herbs
up to ~~1~~ 1 m. tall, stems
reddish. (one branch from
each of two plants on each sheet).
- shrub 1 m. tall;
heads pinkish.
- erect, stems ^{dark} purple, fls. white.
- twining, flowers pinkish
white, unripe pods
deep purple.
- spreading much branched
herb; flowers violet.
- erect, branched herb
6 dm. tall.
- erect; flowers pale
bronze green.
- flowers brick red.

Jan. 20 Darrit, Uliga &
 Dalap Islets, e. end of atoll.
 Vegetation quite luxuriant,
 arborescent.
Pluchea odorata is well
 established on Darrit, in
 places forming greater part
 of shrub layer. *Pluchea*
indica also locally common.
 This and a woody plant
 resembling *Euphorbia*
hypericifolia, and *Chloris*
inflata said by native
 informant Mike, to have
 come with Americans,
 not to have been brought intentionally.

Dalap Islet

- 31191 *Hedyotis biplex*
 common on weedy airstrip
 92 *Euphorbia thymifolia* prostrata Ait.
 common on weedy airstrip
 93 *Chloris inflata*
 common on weedy airstrip
 94 *Euphorbia* ~~thymifolia~~ *thymifolia* Islet
 94 *Euphorbia*
 local along road in sparse woods, around ~~farm~~ installations.
 95 *Pluchea odorata*
 abundant, forming thickets locally
 96 *Pluchea indica*
 common locally
 Uliga Islet, weedy roadside
 97 *Cyperus*
 98 *Physalis*
 99 *Physalis*

same informant gave name
 "kejbar" for *Achrosia paniculata*
 and ~~says~~ said the fruits
 were used as fish-poison
 in old days, also that
 children eat kernels.

Kod. roll 1 27-28 *Pluchea*
 Pan roll A 17 *odorata*

Kod. roll 1 17-20 *Majuro*
 Pan roll A 9-11 from air.

prostrate; flowers
 white, plant chlorotic.
 prostrate, purplish
 green, stems red-purple.
 small tufts, racemes
 purplish.

erect, tips arching.
 arborescent
 shrub 2 m. tall, rounded;
 flowers pinkish white.
 shrubs 1 m. tall; heads
 pinkish.

rare in wet place

tangled herb, fls. yellow.

(ctd. from p. 12)

31188 *Dactyloctenium aegyptium*
rare roadside3 89 *Paspalum vaginatum*
abundant in many
places near inner
beach90 *Cyperus*
common very locally in
wet places around airport
buildings

(back to 12)

31200 *Cyperus rotundus* L.
weed in nursery plot, rare

Kwaj.

dense spreading
clump.forming dense
ground-covers.

spreading tufts.

Jan. 21

soil in coconut grove pH 7-7.5.

Site #1 - north end of island /
Scaevola brush, somewhat at
broken. *Sporobolus per. c.*
ground cover in openings.
Scaevola & Messerschmidia
considered rosette shrubs.
Sporobolus per caprae a lian.

Site #2 Coconut plantation
seriously destroyed by wa-
broken second layer of
Scaevola, Mass. etc.
solid undergrowth of
Wedelia.

Site 3 n. of center of I.
open ground. solid
layer 1-2 m. deep of
Wedelia bipinnis

Site 4 cluster of I. toward lagoon.
open ground solid
layer 2-4 dm. deep of
Sporobolus per caprae

Site 5 center of I just inside
windward beach - almost
solid layer of *Vigna* m.
1-2 dm. lvs leather.

Kodachrome ^{roll 1} 23-24 *Sporobolus per caprae*
Pan. roll 4 13
Kod. roll 1 25-26 + pan. 14
buildings covered by
Wedelia, *Sporobolus*, etc.
Sporobolus per. c. in f.g.

Kod ^{roll 1} 27-28 Pan ^{roll 1} 15
Site #2 Wed. f.g.

Site 6 - wide bare
strip from windward
to lagoon beach,
mostly occupied by
a ~~small~~ stand of
Fimbristylis cymosa
Patches here and there
of *Chloris inflata*,
between tufts of
Fimbristylis are
plants of *Portulaca*
samoensis. Wedelia
and esp. *Sporobolus per-*
caprae are encroaching
from the edges. Part of
the strip is still completely
bare.

Site 7 Forest of Messerschmidia
4-6 m. tall, with some
Pisonia. Undergrowth
largely ~~gone~~ shaded out.

- 31201 *Allophylus timorensis* (DC.) Bl.
 rare, in Messerschmidia forest
 5 02 *Chloris inflata*
 common along trails, nowhere
 else except patches in
 open area.
 3 03
 on moist soil in sheltered
 area.
 6 04 *Fimbristylis cymosa*
 abundant in large open
 area.

Revegetation on Bigej
 shows some interesting
 tendencies. Most of the
 bare ground has been
 covered either by a dense
 mat of *Ipomoea pes-caprae*
 or by a 1-2 m. deep pure
 stand of *Wedelia biflora*.
 The usual annual weeds
 exist only along trails and
 immediately around houses.
Pluchea odorata, though
 here in 1946, exists only
 as a few half dead bushes
 obviously losing out in
 competition with the
Wedelia. A plant or two
 of *P. indica* still persists
 around buildings.
 A few patches of *Vigna*

shrub 2.5 m. tall,
 almost sterile "kubuk"

in dense clumps,
 leaves somewhat
 stiff.

marina ~~still~~ in
 almost pure stand
 exist.

What was low
 brush of *Messerschmidia*
 almost impenetrable
 in 1946, is now a
 dense forest 5-6 m. tall,
 fairly open beneath.
 Some *Wedelia* has
 been there but is now
 dead or almost so.

Coconut trees scattered
 over north $\frac{1}{3}$ show the
 effects of wind and
 spray.

Chloris inflata has
 become common along trails.

✓ Jan. 22 - This islet has been more completely destroyed than any other I have seen. No coconuts left standing, no trees of any size. At the south and north ends are numbers of *Messerschmidia* 3-5 m. tall. Young *Scaevola* is also common here.

At the south end is some soil, and large patches of *Vigna marina*.

Wedelia biflora in pure stand or *Ipomoea pes-caprae* in pure stand cover large areas and are the dominant plants over most of the islet.

- 31206 *Pseuderanthemum* ^{*canthensis* var. *canthensis*}
 3 planted around buildings
 7 07 *Paspalum vaginatum*
 common in open places on lagoon side, some on outer side.
 7 08 *Pluchea odorata*
 one small colony in open coral flat.
 2 09 *Vernonia cinerea*
 occasional in open places
 5 10 *Pluchea indica*
 abundant in open bare part, unable to compete with *Wedelia*.

except the central section. Apparently continual traffic has compacted the limestone debris into a partially consolidated mass that will scarcely support anything. This ~~se~~ extends over most of the central portion. The center is absolutely bare, except for sparse *Fimbristylis*.

No *Chloris inflata* seen.

Pluchea indica abundant in center section but does not stand up against *Wedelia*. *P. odorata* only one small colony.

shrub 2.5 m. tall, flowers white with purple dots in throat, sterile, forming dense mat.

sterile shrub 2 m. tall.

flowers purple

shrub 1 m. tall; heads pinkish.

22 1950 Kwapalein Atoll

- 31211 Polyscias ^{aria}scutellata
planted by building
- 12 Coccoloba uvifera L.
planted by building
- 13 Clerodendrum inerme
in thicket near buildings

The vegetation on the windward side around the buildings at the south end is a low mixture of *Paspalum vaginatum*, *Triumfetta procumbens*, *Vigna marina*, *Sporobolus vaginatus*, *L. tuba*, *Wedelia*, etc. with patches of *Scaevola*, bushes and small trees of *Messerschmidia*, occasional planted coconuts and *Pandanus*.

There are a scattering of young coconut trees, some already flowering, all over the island except in the center.

Eberys I.

23

- sterile shrub 1.5 m. tall, leaves very concave above.
- sterile shrub 1.5 m. tall.
- scrambling shrub, flowers white with maroon stamens and pistil.

24

1950 Guam

✓ Jan. 24 Anigua, 1/4 mi. e. of
County Jct., w. of Agaña

4 m.

Secondary thicket on base
of limestone cliff. Mixture
of *Leucaena*, *Triphasia*,
Piper, *Carica* & *Heterospatha*
on talus at base of cliff.
Triphasia forms a rather

31214
7

Piper guahamense
in secondary thicket
on limestone talus

✓ Jan. 24 Ravine of Lower Fonte R.
1/2 mi. s.e. of County Jct. w. of
Agaña

3 m.

thickets on limestone
bluffs - upper story of
scattered *Artocarpus altilis*
10 m. tall. second dense one
of *Leucaena* and *Heterospatha*
5-6 m. tall. Undergrowth
of *Triphasia*, *Pandanus dubius*
and seedling *Heterospatha*.

15 *Heterospatha elata*
common on limestone bluffs

13 M
25

Pan. roll #16 - *Heterospatha*
elata.

impenetrable tangle.
Piper grows with it.
Heterospatha sterile at
this season. occasional
also on cliff above.

shrub 1.5 m. tall,
leaves glossy above,
spikes erect. root has
slightly anaesthetic
quality, somewhat aromatic.

The whole tangled
with lianas of *Sporosa*
and *Abrus*.

Substratum of rough
limestone outcrop
and boulders.

Pan roll #17 -
Kodach. roll last 5 shots
Heterospatha.

tree 6 m. tall, leaves 2 1/2 m. long,
infl. with green fruit in lower
leaf axils, 3 times branched, light
gray.

✓ Jan. 24 - cliffs near coral pit - vegetation here of brush + low trees, tips of most plants killed, sprouts coming from below. whole has rather brown appearance, almost burned-looking. probably result of salt spray blown from sea below. waves obviously dashed over coastal strip. 115m.

31216 *Allophylus*

just below top of limestone cliff

5 17 *Chloris radiata*

common at top of ^{limestone} cliff

1 18 *Hedyotis corymbosa*

rare on freshly broken up limestone

2 19 *Ipomoea tuba*

common at top of limestone cliff.

Kodachrome roll 2¹⁻⁶ - Typhoon damage to coastal plain vegetation also to trees on top of cliff. *Laportea*, *Cynometra*.

shrub 0.3 m. tall;
- flowers white.
culms ascending to erect.

flowers white,
anthers deep purple.

twines, leaves dull,
not fleshy, flowers
white, not open in
afternoon.

✓ Jan. 24 Limestone flats
near Coral Rits, just
back of ~~Faguan~~ Point
Fadian Fadian #5 m.

Dense low forest 8-10 m.
tall, much torn by the
typhoon, some trees knocked
down.

Substratum very rough
coral.

Veg. roughly 2 layers,
1 quite mixed tree layer
with Pandanus, Rapanea,
Guettarda, Macaranga,
Intsia, Cynometra, Ficus,
Cerbera(?), Guarnia, etc.

Aglaia none (ex. in places Pandanus
Tectarius) abundant enough
to be called dominant.

Macrophyllous.

Shrub layer of
Cycas, Pandanus, Pipturus
Eccarattia, etc. + young
of tree layer. 2-3 m. tall

Cycas most conspicuous
A few vines, as Lagellaria,
etc. Epiphytic ferns
(Pyrosia) on a few trees,
abundant where found.

Aedes (a small sp.) common
and troublesome.

30 m.

- 21220 *Polyscias grandifolia* Volk.
occasional in forest
5 21 *Laportea*
common in forest

- 2 22 *Eragrostis fofoa*
pioneer on fresh broken
coral limestone in open.
5 23 *Chloris inflata*
pioneer on fresh broken
coral limestone, in open.
5 24 *Corchorus aestuans*
pioneer on fresh broken
coral limestone, in open.

erect ~~scarcely~~ branched shrubs
- 1-7 m. tall, fruit immature,
a small tree 7 m. tall,
(others seen up to 1 m. diam.)
fruiting inflorescences
with smaller branches
enormously swollen
and fleshy, calyx and
fruit not fleshy.
spreading

erect from decumbent
base.

prostrate herb,
extensively branched,
stems reddish; flowers
yellow, fruit
strongly ⁽⁶⁻¹⁰⁾ winged

✓ Jan. 25 - Agaña swamp
east of Agaña

A low expanse of
reeds, with occasional
low spots, excavations
and channels with
water in them.

Dominant plant is
Phragmites karika.
Aerostichum aureum common.
Pandanus occasional.
Hibiscus tiliaceus occasional

Conclusively shows that
Phragmites and *Aerostichum*
will grow in fresh
water, and on wet
ground with no standing
water.

31225 *Dryopteris*
edges of swamp along road,
coral soil.

5 26 *Dryopteris*
around excavation in
swamp.

3 27 *Myriophyllum* ^{aquatic}
submerged in water of
channel.

5 28 *Bacopa monnieri*
thick mat in open
trampled place.

Pan roll A-27-28 view from
Kod roll 2 7-8-9 hill near Tinajana

fronds erect, rhizome
just beneath surface.

fronds erect, tips of fertile
pinnules revolute.

some portions of ~~base~~
leaves swollen, aerenchymatous.

prostrate; leaves
subfleshy; corollae
lavender.

- 31229 *Sida acuta* L.
on abandoned weedy road
in swamp.
- 30 *Sida rhombifolia* L. ?
common on abandoned weedy
road in swamp.
- 31 *Merremia gemella* (Burm. f.) Hall. f.
occasional on old road
in swamp

Jan. 25 Agaña Spring.
water works.

Large pool of clear
water, bottom covered
with *Potamogeton*,
some *Myriophyllum*,
floating algae being
skimmed off.

- 32 *Potamogeton*
dominant on bottom of pool
- 33 algae
floating on surface of pool
- 34 *Myriophyllum*
rooted in center of
pool, rising to surface
- 35 *Dentella repens*
forming lawn around
pool, 3-5 dm. above water
- 36 *Zelbingia pendula*
planted on dry stone wall

suffrutescent herb
1 m. tall, flowers
orange-yellow.
weak shrub up to 2 m. long,
stems pale gray-green;
flower orange yellow.
prostrate; flowers clear
yellow, anthers white,
curved.

a very few floating
leaves, these plant,
submerged ones smaller,
crisped, sterile.

lower parts of leaves
swollen, aerenchymatous.

prostrate; flowers white,
lobes slightly dentate;
fruit green.
plant prostrate to
ascending, stems fleshy,
leaves sub-fleshy, maroon below, flowers
magenta.

- 31237 *Lippia nodiflora*
growing around nursery,
apparently spontaneous.

3

- ✓ Jan. 25 Lower Fonte River
w. of Agaña, s.e. of
County Jct.
secondary thickets and
disturbed places.

- 5 38 *Melochia*
rare in thicket

- 6 39 *Heliotropium indicum* L.
occasional on freshly
disturbed broken coral

- 5 40 *Merreria hederacea* (^{Burm.} ~~Hall.~~ f.) Hall. f.
occasional along
weedy roadside

- 41 *Aeschynomene ^{cannabina} ~~seabian~~*
~~*Aeschynomene indica*~~
common on freshly
disturbed broken coral
along road

prostrate, peduncles
erect, maroon, corolla
white.

small tree 5 m. tall,
leaves gray above;
flowers deep crimson
in center, fading
distally to dull magenta.
erect, ~~leaves~~ herb
up to 0.8 dm. tall; leaves
strongly rugose,
flowers lavender.

prostrate, twining,
flowers clear yellow,
calyx lobes with
projecting folded
apex; anthers white,
curved.
erect, branched herbs,
1-1.5 m. tall, flowers
yellow, closed,
articulation between
seeds in pods swollen.

✓

Jan. 24 Agaña Swamp
e. side

Site 1 meadow with
Panicum purpurascens,
Sporobolus sp. *Cleocharis* sp.
Polygonum & *purpurea*
 0.4-1 m tall counting
Cleocharis as one, there
 are 2 layers, but the
 upper one is only partly
 present. could best
 be regarded as one,
 being grazed by a
 few cattle. part also
 cult. as taro patches.
 Is a belt bet. base of
 bluffs and edge of
 cane brake. soil black
 and peaty. water
 table near surface.

Site 2 solid brake of
Phragmites karaka
 4-5 m. tall, only other
 species is a sterile legum-
 inous vine that is occasional.
 ground a black mud,
 water table just below
 surface. Obviously
 inundated part of
 year because lower few
 nodes of canes have
 abundant roots.

Site 3 same but with
 uneven layer of
Hibiscus tiliaceus
 6-7 m. tall. Various
 other plants mixed in
 on higher spots,
 water table lower
 4± dm. see p. 32.
 On roadsides, etc.
Muntingia calabura
 is common. also *Sida* spp.

Kod. roll 2 10-11-12
 Pan roll A 29-30
 zonation in swamp

31242 Eleocharis

1 abundant in low spots in open part of swamp

43 Polygonum

common in open part of swamp

44 Ipomoea

abundant in open part of swamp rooted in mud.

45 Aeschynomene

one individual seen in open part of swamp

✓ Jan. 26 Agaña
Fresh coral fell along road.

46 Eragrostis pilosa

47

48 Ichnyotis

rare

49 Mitracarpum hirtum

sterile

stems 1 m. or more long, prostrate, ascending at tip, flowers white in erect racemes.

stems ascending at tip, flowers purple in throat, fading to white at edge of limb.

shrub 1 m. tall, fls. yellow, banner red, outside except at edges.

culms spreading prostrate, flowers purple, standard white, flowers white.

erect; flowers white.

- ✓ Jan. 27 - Headw. of Fonte R.
brake of *Phragmites*
in bottom of shallow ravine
pure stand of *P. karika*,
dense, almost impenetrable,
water flowing into it
from headward, but
none seen as far as I
entered.

flat area surrounding
this badly wind eroded.
Pennisetum dominant.

- 31250 *Polygala*
common in eroded places
4 51 *Dryopteris*
one small colony in eroded
volcanic soil
5 52 *Dryopteris*
common around edges of
red brake in wet volcanic soil
2 53
desiccating stream bed
in eroded volcanic soil
4 54 *Pennisetum*
dominant plant on
eroded soil
4 55 *Cyperus*
in desiccating depression on
1 56 *Ammannia coccinea* Roth.
one plant only in desiccating
depression on volcanic soil.

- 145 m. soil brick red. pH 7.0
wet. deep. 7.1
clay.
Along edges of brake
Dryopteris and *Lygodium*
scandens common,
along with weeds
such as *Elephantopus*,
Mimosa, *Leucaena*,
Hyptis capitata etc.

rhizome prostrate, fronds
erect.

rhizome prostrate,
fronds erect, only one
fertile one seen.

erect from very
shortly decumbent base.

small tufts.
volcanic soil.
petals crimson.

Jan. 28 - Just east of Talofofo Bay
 Looked for Ruppia in
 mouth of small stream.
 found none.

Vegetation beaten down in
 an upstream direction by
 typhoon. Very little foliage
 left.

Kod. roll 2 13-14 Typhoon
 Pan. roll A 31 damage.

✓ Jan. 28 Talofofo River Valley
estuary running several
miles inland.

In lower part bordered
by broad belt of *Phragmites*,
then a belt of *Barringtonia*
racemosa, above by
secondary thickets
and cultivated patches.

Site 1 pure stand of
Phragmites *khakha*
3-4 m. tall, rather matted,
on wet ground, probably
flooded by really high
tides.

31257 *Opuntia*

lying in grass by roadside,
taking root, ~~branch erect~~.

5 58 *Acalypha* *indica*
roadside weed

5 59 *Pseudelephantopus* *spicatus*
common weed in clearings

No sign whatever of
Ceratopteris *gaudichaudii*

1-12 Kod. Roll. 2 13-14 patch of *Alouasia*
Pan. roll A 32

Site 2 Pure stand of
Barringtonia *racemosa*
about 8-10 m. tall,
rather open beneath,
but with a shrub
layer of young
Barringtonia averaging
about 1 m. tall.

Soil a black mud, channelled
between bases of trees
to depth of about 2 dm.

one branch erect, others
rather ~~to~~ small and
somewhat shrivelled, but
all rooting. Possibly
discarded from someone's
potted collection, but
a strange place to throw
it.
erect.

erect herb, leaves dark green,
flowers white,

✓ Jan. 29 just s. of Talofofo Bay
30 m.

31240 *Ipomoea bona. n. n.*
common along roadside

Kod. Roll. 2 ^{15-17.} Breadfruit Tree
Jan Roll A. 33 damaged by typhoon
vine, flowers white,
already collapsed when collected
shortly before noon.
leaves rounded to lobed.

Jan. 29 - 1½ mi. n. Inarajan

Jan. 29 - Inarajan

~~Jan. 29~~

Jan. 29 near s. end of I.

Jan. 27 Merizo

Jan. 27 Umatag

Jan. 29 near s. end of I.

Pan. roll A. 34-36 - Erosion
Kod roll 2 18-23 - scars &
patches of
woods in ravines
in volcanic area.

Pan roll B - Typhoon damage
Kod. roll 2 - to Nipso

Pan roll B. Makateq with
Kod roll 2 plants damaged
by typhoon

Pan roll B coconut
Kod roll 2 plantation
damaged by
Typhoon.

Pan roll B Kod roll 2
Old bell tower
& boy in auxiliary gas
tank outrigger canoe.

Pan roll B. Kod. roll ²⁺ 3.
views across bay
and up toward mts.
with patches of
forest. Old Camarino
on erosion scar. Open
air library, volley ball
game.

Pan Roll B. Kod roll 3
Typhoon damage.

✓ Jan. 29 Umatag
Hills of volcanic soil
with *Miscanthus*
and patches of *Gleichenia*,
serious erosion scars,
scattered casuarina
and Pandanus trees

3 1261 ♂ *Timonius*

5 62 ♂ *Timonius*

scattered shrubs in
open *Miscanthus* area.

5 63 *Sphenomeris*

on top erosion scar

Hills bet. Merizo + Umatag
have been burned over
some.

Condition of *Rhizophora*
at south end is rather
surprising. The more
exposed young trees are
apparently completely
dead. How they were killed
is not at all clear.

shrub 1 m. tall; fruit green.
shrub 1 m. tall ~~fruit~~ flowers
greenish white, 4-merous.
leaves stiffish.

Typhoon damage is of
several sorts

1. Actual breaking and
uprooting of trees.
2. Killing of ^{leaves and} smaller
branches by desiccation
3. Killing of leaves and
smaller branches by salt spray.
4. Killing or severely injuring
of trees + shrubs by
waves of salt water.
5. Cutting away of soil
by waves of salt water
or runoff of fresh water
(very severe in places)

Feb. 1 - View ^{Guam} from air -
 greater part of northern
 section has been disturbed.
 Primary forest still exists
 in small patches, mostly
 around cliffs and at
 their tops, and a fairly
 large patch in the
 triangle between the
 roads to North Field and
 Northwest Field.

Feb. 1 View of Rota from
 air - forest still exists
 on and near cliffs
 between terraces, and
 on part of the top two
 terraces. Small
 patches beyond air strip.
 All level areas of any
 size seem to have been
 cleared, and most
 of them seem to stay
 cleared. That near
 the airstrip seems to
 be reverting to woody
 vegetation.

Feb. 1 - ~~top~~ View ^{Aguijan} from air
 Top terrace almost
 completely cleared, with
 wind breakers. Second
 largely cleared. Patches
 on others.

Feb. 1 View of Tinian from
 air. Woody vegetation
 coming back in many
 parts.
 Low dense belt of
 vegetation at tops of
 cliffs could be
 mistaken for mangrove.

- ✓ Feb. 1 - Kannat Laulan,
above Magicienne Bay.
Thick red soil mixed
with coral debris,
disturbed area
- 31264 *Miscanthus floridulus*
local on steep slope
below road cut
- 5 65 *Indigofera spicata* Forsk.
occasional around
abandoned installations
- 4 66 *Sorghum halepense*
abundant in waste
areas everywhere
at low altitudes
- 3 67 *Psidium guajava* L.
only one plant seen
(said to be kept under
control by an insect)
- 5 68 *Grewia marianensis*
rare, in undergrowth
in rocky place.
- 5 69 *Psychotria mariana*
common in remnants
of woody vegetation
- 4 70 *Pennisetum purpureum*
var. *merkeri*
common in old fields
and thickets.
- 3 71 *Laportea saipanensis*
remnants of old forest
out in open.

~~125m~~
75m

dense thicket, canes
several m. tall.

low spreading,
rather compact bush,
flowers reddish-orange.

shrub 1 m. tall,
sterile.

shrub 1-1.5 m. tall.
flowers white, ripe
fruit red.
forming small
brakes, culms
up to 3 m. tall, 1.5 cm.
thick, flowering
spikes rare.
large old trees, almost
defoliated, sterile. Trunks
6 dm. in diam.

31272 *Phaseolus lunatus*
 established in abandoned
 field, forming a dense
 blanket over a limited
 area.

73 *Operculina ventricosa*
 common, covering large patches.
 Feb. 1 - O'Leary

secondary vegetation

74 *Lesbania ~~canadensis~~ cannabina*
 common as a pioneer on
 bare ground, and where
 moisture is sufficient
 as here at edge of marsh,
 forming a shrub 3-4 m.
 tall, with woody
 stem 6 cm. thick, flowers
 yellow, brownish without,
 in short pendent racemes.

75 *Acacia farnesiana*
 one large plant seen,
 in weedy place.

Feb. 1 - Chalan Kanoa
 waste places back
 of beach, mostly
 around buildings

vine, flowers white.

huge liana, thickly
 blanketing ~~the~~ large
 patches; flower white,
 bracts pale purplish
 green. Top of outer layer
 of fruit dehiscing off.

shrub 4 m. tall,
 branched at base;
 flowers orange yellow,
 very fragrant, fruit green.

- 31276 *Chloris radiata*
 5 common along roads
 and ~~at~~ around buildings
- 5 77 *Cyperus*
 common locally
 in wettest places
 in coral debris
- 5 78 *Ficus*
 local, just behind
 beach

Feb. 2 Tanapag
 flat moist ground and
 dry roadsides

- 79 *Pluchea indica*
 dry roadside
- 80 *Emilia sonchifolia*
 moist ground, rare
- 81 *Ammannia coccinea* Benth.
 moist ground, rare
- 82 *Jatropha gossypifolia* L.
 planted along roadside
 as ornamental

Feb. 2 Ohaai
 sparse second growth
 on flat ground

- 83 *Melochia*
 occasional

erect tufts

small tree 5 m.
 tall, ripe fruit
 purple-black,
 soft.

shrub 0.5 m. tall

flowers lilac, heads
 pubescent.
 petals lavender-purple.

shrub, m. tall,
 young growth and
 petioles deep maroon,
 glands or hairs green,
 sticky; flowers red.

rounded bush 2.5 m.
 tall, flowers red in center,
 fading to white at ends
 of notched petals.

- ✓ Feb. 3 - South of Garapan
flats of coral sand
just above beach.
31284 *Saccharum spontaneum* L.
several clumps in
opening in bush

- ✓ Feb. 3 - Lake Susupe, west
side
slightly brackish lake,
surrounded by casuarina,
with openings with
Paspalum vaginatum,
thickets 3-4 m. tall of
Hibiscus tiliaceus, on edges
7 75 *Scirpus*
in water at edge of lake

Feb. 3 just east of
Aptera, 2nd of Saipan
dry flats of coral
sand and gravel.
Extensive uneven
mats of *Saccharum*
spontaneum.

erect, rather loose
clumps up to 4 m. tall.

Kod. roll 3, Pan roll B.

of these clumps of
Acrostichum aureum,
Clerodendrum inerme, etc.
Scirpus at water's edge,
forming floating mat
at outside edge.

culms terete.

1950

as 1st 2nd, near Ladangan i Daog

✓ Feb. 3 - base of Krayman
peninsula, near Chacha
thickets on broken ground

31 286 *Mucuna*

4 at side of road on slope

3 87 *Clorix inflata*
roadside

5 88 *Clorix virgata*
roadside, common

5 89 *Mimosa invisa* Mart.
roadside, local

✓ Feb. 3 - near As Teo
s. of Mt. Tahotchan
roadside in hilly
area

5 90 *Buddleia asiatica*
local along road

60 m.

large vine, flower is pale
- green fleshy.
spikes purplish.

spikes erect,
- contiguous.
semi-scandent,
tangled, flowers
light purple.

150 m.

erect shrub 2 m. tall,
flowers white.

- ✓ Feb. 1 South side of
Kagman Peninsula, w. of
Kagman Point 30 m.
terrace of limestone
becoming exceedingly
dissected toward edge
of cliff

- 31291 *Bibbia mariannensis*
abundant, dominant
in places in scrub on
very rough rock.
- 92 *Callicarpa candicans*
in sheltered places in rough
rock
- 93 *Jasminum simplicifolius*
common in scrub
- 5 94 *Capparis cordifolia* Lam.
common in scrub near
cliff edge
- 6 95 *Myoporum boninense* Koidz.
common in scrub near cliff edge
- 5 96 *Hyptis*
common in openings
back from cliff
- 1 97 *Emilia sonchifolia* (L.)
rare, one plant seen in
opening away from cliff

Kod. roll 3 end
Pan roll B

low dense brush of
Bibbia, *Scaevola*, *Myoporum*,
Capparis, *Canthium*, *Jasminum*,
Wedelia, with *Cynometra*, *Trema*,
and *Pisonia* away from
edge.

shrub 1.5 m. tall;
flowers white.

low shrub, seriously
cut back by salt spray.
buds purple.

low, semi-scandent
shrub, mostly sterile;
bright green.

tangled suffrutescent
herb, leaves ^{succulent} gray-green,
fls. white, old ones
faded, new ones about
to open at 5 p.m.

prostrate; leaves fleshy,
bright green; flowers
white, odorless or almost so.

erect herb, to 2 m. tall,
highly aromatic; leaves
rugose, flowers pale.

flowers purple

- 31298 *Tricholaena* ^{rosea} ~~repens~~
 4 locally common in
 openings away from cliff
- 1 99 *Vernonia cinerea*
 rare in openings away
 from cliff
- 31300 *Scaevola frutescens* (Mill.) Kr.
 6 common, especially
 near edge of cliff
- 4 01 *Phyllanthus marianensis*
 occasional in scrub
 away from edge of cliff
- 5 02 *Hedyotis albidopunctata* (Merr.) Forst.
 common on bare coral
 roadbed.
- 5 03 ~~Cleistanthus~~ *Callicarpa candicans*
 occasional in scrub
 this one away from edge of cliff.
- 5 04 *Scaevola frutescens* (Mill.) Kr.
 common in scrub ^{near} ~~away~~
~~from~~ cliff edge.

erect

erect; flowers purple.

low shrub, 1 m. tall,
 leaves somewhat
 fleshy; flowers dull
 purplish-white; fruit
 white, fleshy.
 erect, 1 m. tall.

prostrate; flowers
 white.

shrub 1 m. tall,
 flowers purple.

shrub 0.5 m. tall,
 spreading, flowers
 dull purplish, fruit
 white.

✓ Feb. 4 ^{2. end} Tabanan Lamlan, about
1 mi. s. of As Teo

Area of eroded volcanic
soil, erosion apparently
started by the existence
of a military camp. The
bedrock is a porphyry
or tuff, white inclusions
in a gray matrix, that
is ~~eroded~~ ^{weathered} to a clay, even
though preserving its
structure. The gullies
have cut well down
into this. The general
vegetation where
erosion is not apparent
is *Miscanthus*. In the
eroded areas and the

31305 *Cantharospermum*
common on weedy spots
and roadsides.

5 06 *Lycopodium cernuum* L.
occasional in gullies,
with *Gleichenia*

1 07 *Wikstroemia elliptica*
rare

5 08 *Gleichenia linearis*
common, colonizing
extensive areas on
eroded soil.

700 m soil pH red surface soil
recently burned over
5.6
same material 15 cm.
deeper 5.0
weathered parent
rock 5.0

surrounding *Miscanthus*
are many of the normal
~~savanna~~ ^{savanna} plants - *Miscanthus*,
Cheilanthes, *Euphorbia*,
Sphenoclis, *Gleichenia*,
Lycopodium cernuum,
Geniostoma, *Heteropogon*,
etc. also a number
of strand plants,
such as *Scaevola*, *Ipomoea*,
per-capuae, *Desmodium*
~~triflorum~~ *umbellatum*,
etc.

gray pubescent vine;
flowers yellow.

slender sterile shrub
- 1 m. tall.

rhizomes prostrate,
fronds erect.

- 31309 *Myrtella benningseana*
rare, only one small plant
seen in eroded place.
- 10 *Sphenomeris*
common on bare eroded
subsoil and rock
- 11 ~~*Caecvola frutescens* (Mill.) Kr.~~
~~occasional~~
- 11 *Nephrolepis hirsutula*
in bottoms of erosion
gullies with strand plants
- 12 ~~*Caecvola frutescens* (Mill.) Kr.~~
occasional on eroded area
- 13 *Desmodium umbellatum*
occasional on eroded
ground
- 14 *Cerbera*
occasional on eroded ground
- 15 *Dodonaea viscosa*
occasional on eroded
slopes and in gullies
- 16 *Cantharospermum*
on eroded slope
- 17 *Euphorbia*
on eroded ridge and ~~among~~
Miscanthus
- 18 *Glossogyne tenuifolia*
on eroded ridge
- 19 *Emilia sonchifolia*
on eroded slope
- 20 *Heteropogon contortus*
common on areas that
are not seriously eroded

flowers white.

tufts and small hummocks

erect.

rounded spreading
shrub 1.5 m. tall; flowers
white. fruit white, fleshy.

shrub 1 m. tall, only a
few old dried fruits
still persisting.

shrub with milky
juice.

shrub 2 m. tall, fruit
pale greenish; flowers
green.

prostrate; unusually
hairy.

erect, flowers white.

flowers purple.

- 31221 *Geniostoma micranthum* var. *glabra*
rare on eroded areas
22 *Cheilanthes tenuifolia*
occasional, especially
among *Miscanthus*, but
also (small plants) on bare red clay

✓ Feb. 4 - Unai Lamlan Katan
low coral bluffs along
shore above beach,
mostly covered by *Pennisetum*
and *Pipturus*.

- 3 23 *Hedyotis albida* - *punctata* (Merr.)
in crevices and cavities
on bare cliff.

From here it is obvious
that along this coast a
great deal of salt spray
blows far inland.

Vegetation on cliffs shows
extreme "wind-shear" effect.
In late afternoon sun
the actual spray is

shrub 1 m. tall; flowers
white.
erect

on north east side of Kagman Peninsula

3 m.

Feb. leaves varying in fleshy-ness
to very thick; flowers
white, limb patent; fruit
tending to be fleshy

very visible, blowing
up over cliffs and inland
from north east.

- ✓ Feb. 5 Chalan Kanoa
 31324 *Taeniophyllum*
 epiphytic on *Artocarpus*
 31324a *Emilia myrsinifolia* ^{house} back of beach
 or sand around east
 ✓ Feb. 5 north of Tanapag. — San Tanapag Village.
 5 25 *Panicum purpurascens*
 dominant in low-places
 ✓ Feb. 5 s. of Puntan Maghi.
 n.w. coast
 secondary vegetation
 mostly weeds and *Opuntia*
 5 26 *Trema*
 occasional
 5 27 *Indigofera tinctoria* L.
 ✓ Feb. 5 - Marpa Point (Puntan
 low vegetation on limestone
 flat at top of cliffs 30 m.
 large patches of low
Scaevola frutescens,
 and *Paspalum vaginatum*
 and *Phyllanthus*.
 3 28 *Tridax procumbens*
 bare coral roadside
 5 29 *Clitoria ternatea*
 common in weed patches
 5 30 *Myoporum bonariense* Koeh.
 on rough coral
 asiaticum var. *albescens*
 5 31 *Abutilon indicum*
 common on rough coral
 32 *Hedyotis albedo-punctata* (Max.) Forb.

roots dull green,
 fleshy; buds green.

San Tanapag Village.
 tangled mass
 2 m. deep.

Pan
 B.W. roll B

granules flattened
 by blast of ammunition
 explosion

low wide-spreading
 rounded tree, stem 2 cm.
 thick, flowers reddish.

Labarets) Views of Marpa Cliffs
 from several places
 B+W Roll B+C
 Kod. Roll 4
 also unexploded shell
 with *Passiflora foetida* in by.

rays yellowish white

tangled vine, ^{staggered}
 intense blue, with
 termin yellow claw
 prostrate, leaves
 fleshy; flowers white
 with honey like odor, fruit magenta
 low shrub, flowers orange
 leaves fleshy, fls. white.

1950

71333

Caribaea toresiana Gaard.

1

rare on edge of cliff

34

Phyllanthus

locally abundant

on rough limestone

359 *Trema*

common tree

Feb. 5 - e. of Marpi Cliffs

open weed patches and

cane fields, roadside

with *Passiflora foetida*

eroded place in red

earth with great

quantities of dead *Achatina*

shells. Deep red granular-

silty soil, testing

about 6.5. Few live snails seen.

sterile.

leaves sub-fleshy,
flowers white.tree 4 m. tall, leaves
silvery beneath, fruits green

Pan roll C

Kod. roll 4

pictures of dead snail
shells in gullies of red
eroded soil.also of vegetation above
showing patches of
Acacia confusa in
forest.

- ✓ Feb. 5 - Fanuchuluyan Bay
Terrace at top with
thickets of *Albizia* and
Leucaena, patches of
sorghum, fields of sugar cane
Thickets open beneath.
Cliffs with forests of
Cordia, *Barringtonia*, *Phemna*,
Cynometra, *Hernandia*,
Erythrina, etc. tangled
with *Alyxia*, *Abrus*, etc.
Open places with *Pemphis*
and *Bikbia*.

- 5/31336 *Amaranthus*
common at foot of
cliffs at top of beach
7 77 *Alyxia toresiana*
common in woods on cliff
7 38 *Commelina benghalensis*
local in thickets at
top of cliff around ruined
building
5 39 *Blechnum brownii*
common in thicket
2 40 *Malvastrum*
one plant seen in thicket

- ✓ Feb. 5 Puntan Fanuchuluyan
s. of Fanuchuluyan Bay
Cliffs of gray tuff,
41 *Jussiaea ~~maritima~~ tenuifolia*
common on bare cliffs
5 42 *Cassia*
common at edge of thicket

strand forest at base
on talus and top of gravel
beach of old trees of
Hernandia, *Thespesia*,
Pisonia,
open beneath, with
Thuarea and *Ipomoea*
pes-caprae, these running
out onto beach. *Ipomoea*
seedlings coming up
abundantly on sand
just at top of wave marks.
erect.

vine, fruit black.
stem fleshy.

stems erect at tips.

erect, fls. orange.

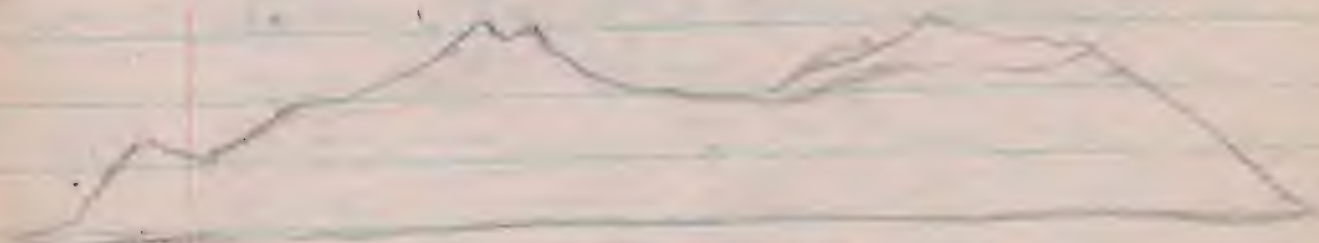
Kod roll 4 - views across bay
Pan roll C / with *Isletan* *magas* *Fahang*
also view inland
forming a turf

low shrub or subshrub, fls.
yellow, pods green.

Feb. 5 Center of island west
of Puntan Fannuchutan

At pass Miscanthus
is definitely growing
on almost bare limestone.
Ferns and other things
under acacia.

Feb. 6 Anatahan



from about 15° N. of E.

Looks like a cone that
once was much higher but
has had the top blown off,
slightly dissected on
s.w. slopes, less so further
east. Rim & ridges
look grassy, sparse forest
in ravines and on high
peaks.

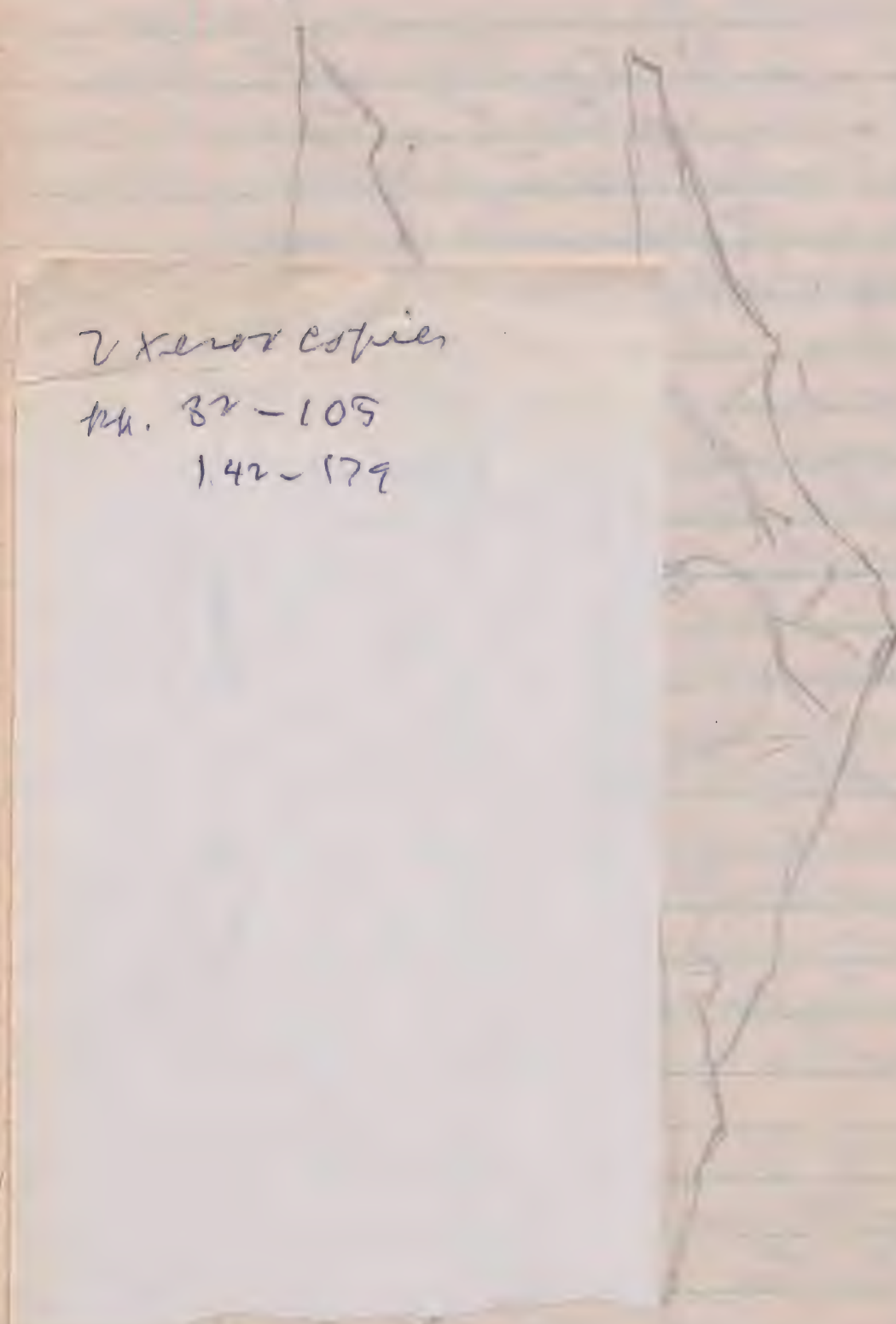
Some wave cutting around
shoreline, resulting in truncated
ridges and in places a very
recent looking sea cliff.

Kod. roll 4 Pan Roll C photos of
Passiflora foetida covering
red soil on ammunition
storage depot. also of limestone
peaks, acacia confusa
forests.

2 Xerox copies

ph. 32-105

142-179



2 Xerox copies

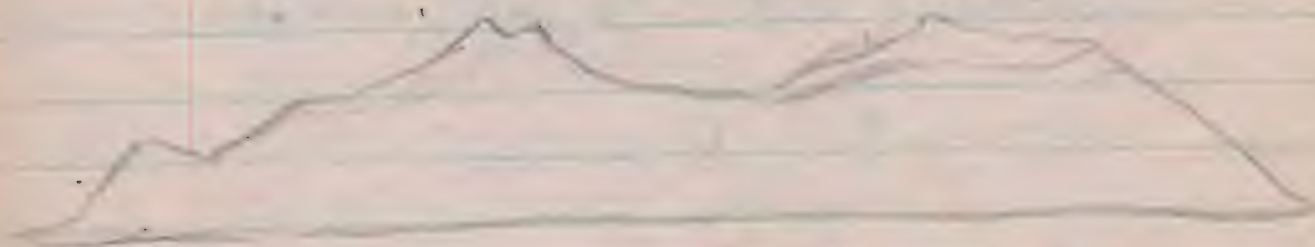
ph. 82-105

142-179

Feb. 5 Center of island west
of Puntan Faruchulutan

At pass Miscanthus
is definitely growing
on almost bare limestone.
Ferns and other things
under acacia.

Feb. 6 Anatahan



from about 15° N of

Looks like a cone that
once was much higher but
has had the top blown off,
slightly dissected on
s.w. slopes, less so further
east. Rim + ridges
look grassy, sparse forest
in ravines and on high
peaks.

Some wave cutting around
shoreline, resulting in truncated
ridges and in places a very
recent looking sea cliff.

Kod. roll 4 Pan roll C photos of
Passiflora foetida covering
red soil on ammunition
storage depot. also of limestone
peaks, acacia confusa
forests.



Feb. 7 - near Salt Lake
w. side of island

ash beds, granular
ash #7-7.5

- 31343 *Hibiscus tiliaceus* L.
common around edges
of salt lake, not seen
to any extent elsewhere
- 44 *Sphenomeris biflora* (Kaulf.) Tagawa
on cut bank in ash
- 45 *Zoysia tenuifolia*
abundant locally
forming a solid cover
- 46 *Polyscias scutellaria* (Burm.) Fock.
planted around old house site
- 47 *Theretia peruviana*
planted around old house site.
- 48 *Euphorbia hirta* L.
common weed in road
- 49 *Phyllanthus niruri* L. *amarus* Schum.
occasional along road
- 50 *Pennisetum purpureum*
common locally along road
- 51 *Dactyloctenium aegyptium*
common weed along road

Feb 7 ash beds of
isthmus, near harbor;

- flats, somewhat cut
by ravines, covered by *Miscanthus*
- 52 *Cassia occidentalis* L.
occasional along road

Pan roll C - views of Pagan
in early morning
from ship.

Kod roll 4 - various views of
volcanoes, also vegetation
near fresh water lake
and of lake from Mt. C. F.

spreading low tree

caespitose, leaves tending
to be leathery.
forming dense mat.

erect shrub, 2 m. tall,
leaves very conchoidal.
small tree, flowers
yellow.

Th. det.
G.L. Webster
1955

forming dense tangles
spreading tufts

flowers yellow

- 31353 *Eleusine indica* (L.) Gaertn.
rare weed in ravine
- 54 *Desmodium triflorum*
common on bare places
- 55 *Heteropogon contortum*
common on bare ash
- 56 *Crotalaria ~~retusa~~ ^{pallida}* ~~Diels~~
abundant everywhere
- 57 *Ipomoea batatas*
one small colony

Feb. 7 - near salt lake (see p. 89)

- 58 *Lathyrus roseus*
common along road,
spreading from planting
at camp
- 59 *Elephantopus mollis*
common generally on ash
- 60 *Jatropha gossypifolia* L.
dominant over large areas

- 61 *Sida rhombifolia* L.
common weed
- 62 *Sida acuta* L.
common weed
- 63 *Amaranthus spinosus* L.
occasional weed

spreading tuft.

prostrate

erect shrub 1-1.5 m. tall,
flowers yellow with
brown lines.
formerly a principal crop here.

flowers white

shrub with fleshy
stems, 1 m. tall, young
growth purplish, hairs
purplish with green
viscid glands; fls. red.
said to have been brought
by Japanese who used the
oil from the seeds as hair
oil for women.

erect herb, 1.3 m. tall.

ascending herb, 0.9 m. long,
fls. orange.

erect herb 1 m. tall.

- 31364 *Euphorbia prostrata*
very common weed on roadbed
- ✓ 65 *Portulaca oleracea*
common weed
- 3 66 *Digitaria ciliaris*
occasional weed in road.
- 2 67 *Eragrostis ~~amabilis~~ tenella*
common weed generally
on bare soil.

✓ Feb. 7 - flats near landing
ash soil

- 1 68 *Stachytarpheta ~~jamaicensis~~ ^{indica} ~~latifolia~~*
only one plant seen
- 1 69 *Emilia sonchifolia*
occasional here,
not seen elsewhere on island.

Near the landing and
around the bay to where
the hills come near to the
beach, and across the
broad isthmus or depression
between the two high
parts are extensive flats
covered by ash beds. This
part constitutes the only
extensive agricultural
land on the island outside
the coconut plantations.
The ash is workable and
probably fertile, and
is about neutral in

prostrate

prostrate, bronze green,
fleshy.
culms ascending.

spreading tufts.

flowers blue-lavender,
leaves gray-green.
flowers purple.

reaction. It is granular
in texture and gray,
where fine, almost black.
Agriculturally the principal
difficulty might be water.
Any extensive dry period
might mean crop failure.
A part of the isthmus covered
by lava flows.

Feb. 7 - Fresh Water Lake
lake of brackish water
inside old crater.

surrounded by *Acrostichum*
aureum and *Casuarina*,
on one side is a flat place
with forest of *Trema*,
Casuarina, *Psychotria*,
Ficus spp., *Melanolepis*, *Pearsonia*, *Aplasia*,
etc. The *Casuarina* trees
are tallest but old ones

31370 *Psychotria mariana*
common tree in second
story of forest

3 71 *Trema orientalis* var. *argentes*
commonest tree on island
except *Casuarina*.

1 72 *Passiflora foetida* var. *hispida*
abundant, climbing
over other vegetation

3 73 *Grewia crenata*
common in second story of forest

1 74 *Ananas comosus*
persisting in open ^{wet ground} around
lake.

1 75 *Alocasia macrorhiza*
occasional in wet ground near lake

1 76 *Colocasia esculenta*
common locally in wet
ground east end of lake

are in poor condition.

tree 5 m. tall, ~~fls~~ stipules
as in *Mapourea* when
well developed; flowers
white, salverform, ripe
fruit red.

— small rounded tree
5 m. tall, ripe fruit dull
dark reddish.

extensive herbaceous
vine, flowers white
with basal half of
corolla segments deep purple.
fruit orange.

— small tree, spreading,
4 m. tall, fruit green.
plants sterile reddish
pale green in color.

leaves erect, bright green;
— plants 1 m. tall, ~~leaves~~ purple,
petioles erect, ~~leaves~~
blades glaucous, pendent,
dull. plants sterile.

- 3/377 *Psychotria mariana*
common in understory
- 2 78 *Chara zeylanica*
covering lake bottom in 5-8 dm.
of water
- 1 79 *Acrostichum aureum* L.
continuous belt around lake
at water level and up 4-8 dm.
- 3 80 *Euphorbia thymifolia* *Euphorbia prostrata*
common in path in old village
- 2 81 *Melanolepis multiplendulosa*
occasional in understory
- 1 82 *Premna* ~~*obtusifolia* R.Br. (obtusifolia leaves)~~
occasional in understory
- 2 83 *Operculina umbellata* *ventricosa*
occasional in woods
- 3 84 *Ficus tinctoria* Forst. var. *neo-cordata*
common in woods
- 2 85 *Polypodium scolopendria*
local near edge of lake
~~terr~~ terrestrial.
- 1 86 *Aglaia mariannensis*
one of commonest trees in forest
- 4 87 *Cyperus polystachyos*
abundant locally in wet spot
- 4 88 *Pteris quadriantha* Retz.
common on walls and
bluffs of partially consolidated
- 4 89 *Abrus precatorius*
occasional in forest near lake

shrub 3 m. tall. flowers
white.

ill-smelling when
freshly taken from water.

clumps, ponds 1-m.
long.

prostrate, purplish.

~~occasional in under~~
shrub or small tree,

racemes pendent, dark brown,
shrub 2 m. tall,

flowers green with larger lobe white
great vine, climbing
over vegetation; flowers
white, open at 11:30 a.m.
center yellow.

tree 6 m. tall; fruit
orange when mature.
fronds erect, sterile.

small tree 3 m. tall.

ash or shade.

vine climbing in bushes,
flowers purplish.

- 31390 *Carica papaya*
occasional in forest
- 2 91 *Nephrolepis hirsutula*
common in forest on ground
- 3 92 *Ficus prolixa* var. *subcordata*
common in forest

Low ^{mucky} ~~peaty~~ soil e. of lake pH 7
samey ~~in lake~~ at east
end of lake.

- 3 93 *Ipomoea aquatica*
in low moist ~~forest~~ ^{mucky} area at east end of lake
- 3 94 *Paspalum conjugatum*
in low moist ~~forest~~ ^{mucky} area at east end of lake.

Birds:

Saw about half a dozen ducks that may have been Marianas mallards on the fresh water lake. Another reported from the salt water lake. They looked much as I remember mallards, but rather small and with a bright red face. One pair behaved as though they were nesting.

Fairy terns common.

Starlings(?) seen in the trees near lake.

tall single stem, flowers cream white. (fruit of ♀ plant very small).
fronds and rhizome erect.

large banyan, one half leafless and with green fruit, other half leafy. (one leafy twig from another individual)

prostrate, flowers pale lavender with purple throat.

stems running, with erect branches.

A dark bird with lighter head that flew like a dove, but did not get a good view.

About 15 reef herons over the salt water lake, most of them white.

One kingfisher.

The snails here have unusually thin shells. Possibly due to lack of limestone.

- Feb. 7 - same - on ^{rather} recent
lava ~~at~~ east ~~end~~ of lake
mostly covered by *Miscanthus*
- 31395 *Hypoxis pectinata*
common locally
- 96 *Ipomoea pes-caprae*
rare, on lava just above lake
- 97 *Cyperus javanicus*
edge of lava, in wet soil pocket
- 98 *Paspalum obiculare*
common on lava in soil pockets
- 99 *Cheilanthes tenuifolia* (Pursh.) Sw.
occasional in crevices on lava
- 31400 *Vernonia cinerea*
common
- 01 *Digitaria ciliaris*
occasional
- 02 *Phyllanthus ~~javanicus~~ marianensis*
common locally

- Feb. 8 - Mt. Charlen ~~the~~
spatter cone just east of
lake
- rough lava and
serotina
on wall of deep
crevasse, shaded
- 03 *Glossogyne tenuifolia*
local on lava slope
- 04 *Cheilanthes tenuifolia* (Pursh.) Sw.
around hot-air vent
- 05 *Nephrolepis ~~insutula~~*
common on outer slopes
of cone, in crevices

soil pockets on this lava
with fine black soil pH 6.5

erect herb 1.5 m. tall,
aromatic.
prostrate, flowers
purple.

erect

fls. purple.

one plant shrubby,
others almost acaulescent.

Kod. roll 5 views of crater, of
Pan. roll D cone, of lake, of
black lava flow, etc.
of slopes and cliffs around
caldera, with *Miscanthus*, *Casuarina*
fronds erect

rays yellow

- 31407 *Lphenomeris biflora* (Kaulf.) Tagawa
rare on crater rim
- 2 08 *Glechhia linearis*
one or two tiny colonies inside
rim of crater, plants all young.
- 2 09 *Navallia solida*
on fresh lava flow
just east, one of first colonists
- 2 10 *Nephrolepis himantula*
on fresh lava flow just east.
one of first colonists
- 5 11 *Casuarina equisetifolia* L.
on fresh lava flow, just
east, one of first colonists.
- 1 12 *Chrysopogon aciculata*
on ash beds to east
- 3 13 *Ageratum conyzoides*
common locally on lower slopes
- 2 14 *Melastoma malabathrum*
rare, one plant seen just
below rim.
- 2 15 *Fimbristylis ^{boninensis Nakagata} ~~wahashiana~~ Kuhn.*
common on crater rim

Mt. Charlen ~~Mount~~ is a small
dormant cone of scoria east
of the fresh water lake, in the
large caldera occupied ^{at it} ~~by~~
by this lake. it is of ^{material} ~~various~~
of various sizes, covered by
a smooth red hardened crust.
Has a small crater filled
with vegetation. A lava flow
of semi-pahoehoe issued from

fronds erect

forming inat;
scapes erect.
erect, fls

small shrub, flowers
white.

tufts.

its base and flowed to
the lake. This is now covered
by sparse vegetation, mainly
Miscanthus. *Casuarina*
covers the slopes of the cone. Various
vents on the sides, base,
and rim give forth hot gases
but no odor. Between the
flow and cone base is a deep
crevasse.

100 1950 Pagan

- ✓ Feb. 7 Pass bet. the two lakes
on walls of compact ash
p. H. 7-7.5, partly shaded.
71416 ~~Dryopteris~~ *Thelypteris unita*
common
7 17 ~~Dryopteris~~ *Thelypteris tomentosa*
occasional

- ✓ Feb. 7 Lava flow at landing
7 18 *Wedelia biflora* v. *argentea*
local

old. from p. 77. — From the
base of Mt. Pagan, directly
opposite this, has come
recently, a flow of intensely
black aa lava. It has
only a few plants — *Casuarina*
Nephrolepis & *Davallia* mt.

Pagan is a double complex of
volcanic outlets with a
main high volcano on each
end. On the west end, around
Mt. Pagan, are a series of
secondary vents of various
ages, including an old caldera
occupied, in its lowest part,
by the fresh water lake.

The sides of the main
cones are steep and of loose
material. The top parts
are almost bare, with a
few *Casuarina* (?) trees struggling

Pan roll 0 - view of
east peak of Pagan late
afternoon

101

rhizome creeping.

spreading tangled herb,
flowers yellow.

on the slopes.

On the lava and ash the main
colonist is *Miscanthus floridulus*,
but *Ficus* (2 sp.) & *Morinda*
citrifolia are frequent. *Heteropogon*
forms occasional patches. *Trema*
is also here and there, as in
the small crater of Mt. ~~St~~ Charles.

Feb. 8 - Village - many
plants in cultivation
around village, also
many weeds.

31419

Triumfetta

common in coconut plantation

4

20 Elephantopus mollis

common in coconut plantation

1

21 Lida rhombifolia

common weed in coconut plantation

3

22 Ocimum sanctum L.

commonly cultivated

4

23 Blechnum brownii

common weed in coconut plantation

3

24 Passiflora foetida v. hispida

occasional weed in plantation

1

25 Thesvetia peruviana

cultivated around houses

3

26 Premna corymbosa

cultivated around houses

1

27 Acacia farnesiana

cultivated

1

28 Scaevola ~~frutescens~~ ^{truncata}

cultivated

1

29 Ipomoea pes-caprae

dominant beach plant

3

30 Vernonia cinerea

common weed everywhere

1

31 Eleusine indica (L.) Gaertn.

common weed in village

1

32 Amaranthus spinosus

common weed

coconuts, papaya, banana, tobacco
lime, mango, terminalia c.
acacia farnesiana, Trema d. r. a.

erect herb, 1 m. tall;
- flowers yellow.
erect, flowers white.

erect herb 0.8 m. tall.
aromatic
erect bushy herb 0.6 m.
tall, bracts purple,
- corolla white.
- sprawling herb.

herbaceous vine

shrub 2 m. tall; flowers
yellow.
shrub 3 m. tall, flowers
greenish, ripe fruit black.
- single large bush,
- largely defoliated.
shrub 2 m. tall,
- flowers white
luxuriant vine, spreading
over beach and climbing low cliffs,
- flower purple.
erect, flowers purple

~~erect~~ spreading tufts.

erect herb 0.8 m. tall

- 31433 *Phyllanthus* ^{amarus Schum. & Th.} ~~sericeus~~ det. G. L.
 3 common weed in village
 34 *Synedrella nodiflora*
 common weed in village
 and plantation
 35 *Lambertia canadensis*
 cultivated in village
 36 *Malvastrum coromandelianum*
 occasional ^{weed} in village

Feb. 9



Farallon de Pajaros from N. W.
 7 mi. dist.

Webster
 1955

erect

erect, flowers yellow.

shrub 2 m. tall

flowers orange-yellow.

no detail could be made
 out but summit appeared
 to be capped with steam.

1950

Minami Iwo Jima

24° 15' N

141° 28' E

Feb. 10



profile from
N. side
isoclines & with
alt. half base.

Minami Iwo Jima from a little south of east.

abrupt cone of ~~very~~ light colored ^{and gray} material. Intermittently covered by an umbrella-shaped cloud (or smoke?) (not smoke)

Several large break-off cliffs around basal part. above them large areas of woody vegetation. Apparently ~~the~~ grass on all parts not covered by woody veg. ex. some of the more abrupt cliffs and talus filled vertical ravines. Break-off exposures show dark ^{gray} rock, bedded in places. Loose material is a light pinkish tan color or gray.

Thin woody veg. clear to summit. Grass may well be Miscanthus. Break-off cliffs abundantly cut by thin vertical dikes.

Woody veg. looks fairly dense. A number of trees orange yellow, as though dead with full foliage. Scattered here and there.

Woody vegetation seems to cover all parts that are reasonably stable and not too steep. Grass on loose ash & talus, also on some sharp ridges. Light green vegetation, possibly Scaevola or Euphorbia, prominent on lower talus slopes. No beach vegetation.

Chart says active volcano in 1919, but this is doubtful. Capt. says sulfur fumes came from sea to north some time ago. Vegetation does not indicate any evidence of recent activity. Trees on summit, no evidence of crater.

Kod. roll 5 and. roll 6.
Pan. roll D

On ^{south} east side is a black sand beach and at least one place where the cliff could be climbed. (on s.e. corner.) ^{landing feasible in good weather, soft mud, rubber boat.} ~~west~~ side is more precipitous, with ~~steep~~ hanging valley, and steep boulder beach, ^{black sand} cliffs around base. Hanging valley (or almost vertical ravine) wooded. Cliffs around base on this side could scarcely be climbed. ~~Northwest~~ side basal cliffs unclimbable, 45° slopes above well wooded. Rock beaches. Long shoal with rocks to northwest.

2 places on s.w. corner can be climbed, giving access to 2 different 'cirques' each of which might give access to summit and rest of upper slopes.

Several small caves on s.w. side, high up. S. e. corner has a comb-like ridge. E. side cirque-like, with great talus slope running 1/3 way up, eroded into gullies.

middle section huge bare cliffs. little woody vegetation on this side except a strip on extreme left, and a few patches elsewhere.

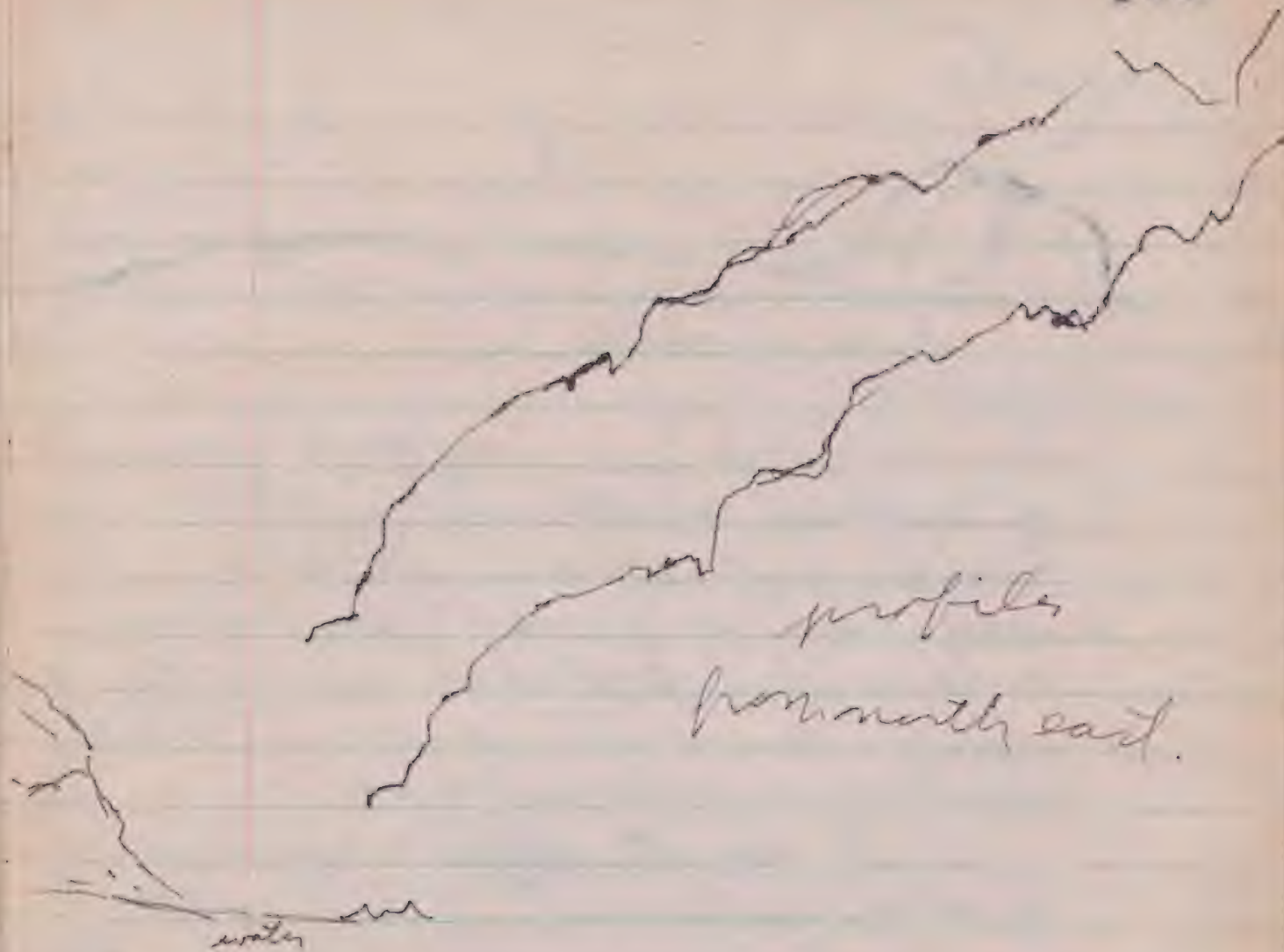


possible access to upper slopes on n.e. corner

From n.e. trees can be seen on summit, fair sized ones. No evidence of a crater

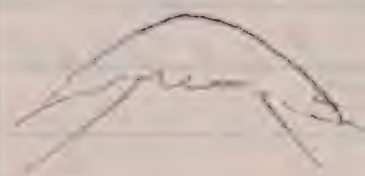
Apparently it would be possible to walk around the island on the beach except for the south east corner, where an old ship is on the rocks. Perhaps in really rough weather it would be difficult anywhere on beach.

No good camp sites evident.



Several Black & sooty albatross seen near island.
Many red tailed tropic birds.

Curious umbrella shaped cloud quite persistent, shifting, sometimes almost disappearing, then returning but always maintaining its shape



No evidence of fresh water seen, but doubtless may be seeps and sea-level springs.

Feb. 10



from south

Iunabachi is a rugged mass of bedded material with cliffs and talus. Little vegetation except on talus and a few patches above the cliffs on south side. No trees but some low bush.

Flat part seems grassy from a distance. Some woody veg. at base of Iunabachi toward flat side.

West side of Iunabachi has almost no vegetation, is cliffs + talus, stained with sulfur.

Large crater on w. side, rim much lower to west.

On w. side of flat part are a few scattered trees, mostly grass.

Volcanic material here mainly light colored, one or two outcrops of dark.

Kod. roll 6.
several views
from s. & w.
Pan roll D & E
several views
from s.
transverse from
west.



w. side Iunabachi

North end seems to have several terraces, esp. when viewed from west.



n. end from w.

Also some rather high cliffs.
There seem to be traces of at least 7 or 8 terraces.

Feb. 10



Red, with
Pam. coll. E

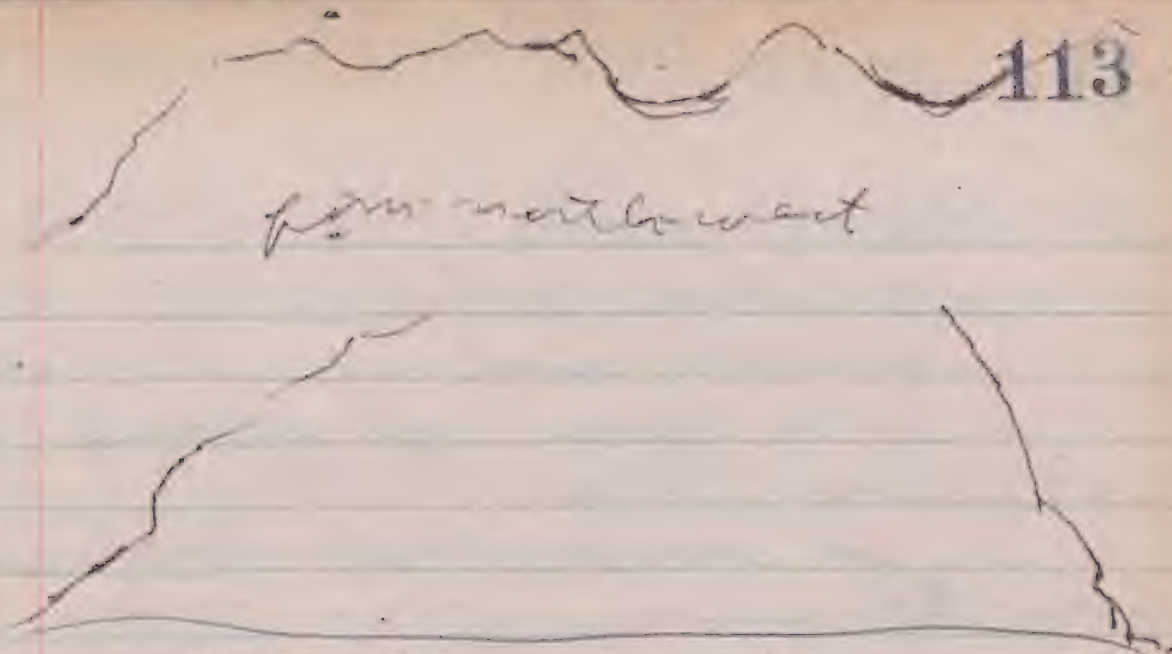
View from south

Made up of bedded dark red-brown and red-gray material probably mostly tuff.

Break-off cliffs and talus slopes common. Age of talus and cliffs may be estimated by amount of vegetation developed on them.

Several conspicuous very steep hanging valleys on west side. Woody vegetation very well developed in these and on all ^{upper} slopes visible steeper places and some talus slopes grass covered but these not prominent. Grass and some green woody (?) veg. on ledges on cliffs. Broad-leaved veg. apparently develops almost as soon as grass on basal talus, later these slopes become wooded.

North slope precipitous, scarcely wooded. ~~most~~ East slopes moderate half way up. considerable grass, as well as woods. East slope steep with high cliffs at base. Slope wooded, cliffs bare. Grass on talus at base.



from north west

View from west

In general the island is well wooded.

North slope has a long serrated ridge extending in a cliff.

Basal cliffs around north and west and south sides, talus at base, rocky beaches all around, ^{these sides} on n.w. side ~~these~~ deep valleys cut almost to base-level. Various places seem climbable.

Same sort of umbrella-shaped cloud as on Manami but denser and larger, upper fourth ^{of island} not visible.

O n. n. e. side is a gently sloping shelf with steeper slopes above it. Pre-war village could have been here.

Feb. 11 - north side of Mt.

back of Omura 70 m. alt.
thickets, and windbreaks
and openings on slopes.

31437 *Elaeagnus*

several plants on bushy slope

38 *Rubus*

local on bushy slope by trail

39 *Athyrium?*

local in small ravines

40 *Casuarina equisetifolia*

common on slopes, forming thickets

41 *Acacia confusa* var.

occasional in thickets

42 *Pinus*

common in patches and rows

43 *Pteris*

occasional in shade of
great boulders

44 *Dryopteris*

occasional in shade of great boulders

45 *Boehmeria*

common in bushy patches

46 *Lambucus*

rare on ~~so~~ ~~flat~~ hill covered
by great boulders

47 *Trema orientalis* var. *argentea*

common everywhere, this plant

clay soil from decomposed
volcanic tuff (and a green
rock).

tangled
shrub 2 m. tall, fruit
turning orange.

low semi-scandent shrub;
flowers large, white.

rhizome erect, short,
fronds up to 1.5 m. long;
two extra pieces with
each specimen from different
plants.

small tree 6 m. tall;
said to ~~be~~ have been imported
by Japanese and called "American pine".
small tree 5 m. tall, sterile.

tree 15 m. tall, 3 dm. thick.
cones on ground beneath, said
to have been brought by Japanese
and called "Shinawa pine".

fronds arching.

shrub 1.5 m. tall, fruit
old and shattered.

shrub 1.5 m. tall,
mostly dead.

young tree 4 m. tall, sterile.
(all seen sterile)

- 31448 *Oplismenus compositus*
between great boulders on hilltop
- 5 49 *Pouteria*
common on hilltop of great boulders
- 1 50 *Gnaphalium purpureum*
in tiny soil pockets on top of great boulder
- 3 51 *Ardisia*
common tree on hilltop of great boulders.
- 5 52 *Psilotum nudum*
one small colony on top of great boulder
- 3 53 *Asclepias speciosa*
Very common, especially on rocky places.
- 2 54 *Cinnamomum ^{japonicum Sieb. det.} ~~cassipourea~~*
common in thickets, this one on rocky hilltop
- 6 55 *Ochrosia*
occasional on rocky hilltop
- 5 56 *Ardisia sieboldii?* det. Walther
common on rocky hilltop
- 5 57 *Piper*
common on rocky hilltop
- 5 58 *Celtis*
common tree on rocky hilltop
- 3 59 *Mucuna gigantea*
common on rocky hilltop
- 1 60 *Calophyllum inophyllum*
common, planted for windbreaks

- stems elongate, prostrate, ascending at tips.
- tree 8 m. tall, sap milky, leaves dull green, coppery beneath.
- tree 4 m. tall, fruiting heavily. fruit green.
- plants erect.
- woody vine, extensively twining; sap milky; fruit rare.
- tree 5 m. tall, aromatic, in bud only, rarely so.
- tree 6 m. tall, spreading, sap milky, fruit yellow and fleshy when ripe, in pairs.
- tree 3 m. tall, fruit green.
- vine, rooting at nodes, flower spikes extremely young.
- tree 6 m. tall, leaves paler beneath, fruit green.
- woody vine climbing in trees; flower clusters on old wood on lower leafless part of vine; flowers pale green.
- tree 7 m. tall, densely leafy. "tamaro".

- 31461 *Rhododendron*
occasional on bushy slopes
- 62 *Ficus*
occasional in old wind break
- Feb. 11 - slope back of Omura,
around bombed out Japanese
installations. 10 m.
- 63 *Solanum nigrum* L.
in crevices in broken concrete
- 64 *Youngia japonica*
common in crevices in
broken concrete
- 65 *Cyperus alternifolius*
common generally
- 66 *Chloris radiata*
common in roadway
- 67 *Raphriolepis*?
on small bushy hill, common
- 68 *Hibiscus tiliaceus* var.
common on small bushy
hill
- 69 *Ficus*
common generally in thickets

Acc. Wilson favors the
Japanese cleared the
seaward slopes thoroughly
and put them under cultivation.
Then they found the wind was too
strong, so they had to plant windbreaks,
for which they used the native *Calophyllum*

shrub 1.5 m. tall, leaves
glaucous beneath; sterile.
shrub 1.5 m. tall; fruit
purple on one side.

flowers white.

flowers yellow.

densely caespitose

shrub 2.5 m. tall, leaves
leathery somewhat
pellucid-reticulate veined.
shrub 3 m. tall, leaves
green beneath.

banyan tree 5 m. tall,
spreading, aerial roots
numerous, figs turning purplish.

This does not thrive inland
where there is no salt spray.
Rhododendron used in making
medicine by Japanese. Used for
"gripes" (stomach cramps?) and for
fever in children. Evidently used on
a large scale, as they tried to get the Bonin
people to plant it.

Feb. 12 - slopes of mountain
back of Amura
Dense mixed forest,
in places rather tall
and with little undergrowth,
in other places stunted
and bushy, or even open
and dominated by sedges.
Palms very common.

31470

common, scattered over
whole slope

"cabbage palm", bud
eaten, leaves used for
thatch in old days. A
rope of them would
last 25-30 years.

71 Wikstroemia
occasional in open
spots in forest

72 rare in sparse places in forest

73 rare in sparse places in forest

74 Ficus
rare in undergrowth
in bushy places

75 Hibiscus
common in more scrubby
forest.

Roll 6
Roll E a few
shots of
vegetation

75-150m.

This area said by Wilson
Laroy to have been main-
tained as a preserve by
the Japanese governor, with
cutting only rarely allowed
and then strictly limited.

slender clean trunk
6 m. tall, many leaves,
fruit green (endosperm
hard when ripe); ~~petioles~~
~~without prickles on~~
~~mature trees, but quite~~
prickly when young. (two
leaves with prickly petioles
taken from trees with
trunks 1 and 2 m. tall).
shrub 3.5 m. tall, sterile.
(others seen 5 m. tall).

31470a
31470b

shrub 2 m. tall, flowers
white.
shrub 1.5 m. tall, fruit immature.
(broken shrub, only one seen
with fruit, to go with #31472)
shrub 1.5 m. tall; figs
immature.

tree 7 m. tall, one flower
picked up on ground beneath,
yellow turning red, deep
maroon center and stigmas, yellow stamens.

- 31474 *Zabnia*
occasional in open places
- 3 77 *Eugenia*
common in and around openings
- 4 78 *Smilax*
common around openings
- 5 79 *Hibiscus*
edge of opening, common
- 3 80 *Eugenia*
common in and around opening
- 2 81 *Hibiscus*
in opening
- 5 82 *Raphiolepis*?
common in forest, this plant in bushy second growth
- 3 83 *Pandanus* *P. boninensis* Wats. det G. T. S. 1968
common, this plant in opening
- 6 84 *Carex*
common on bare or eroded spots and disturbed places in forest
- 5 85 *Raphiolepis*?
common in forest
- 5 86 *Laurac.*
common in forest
- 1 887 *Schinus terebinthifolius*
around old fox-hole, probably planted

- dense erect clumps, inflorescence black.
- tree 7 m. tall, fruit rare, reddish black, glossy, tangled vine, spineless; leaves glaucous, sterile.
- small rounded tree 4 m. tall.
- shrub 3 m. tall, fruit reddish black, glossy.
- young plant, sterile; shrub 2 m. tall.
- shrub 3 m. tall (others much larger); fruit black.
- (in bush) tree 5 m. tall, fruit green.
- dense tufts, scapes arching.
- shrub 2.5 m. tall, others seen larger; flowers ~~pale~~ pinkish white.
- small tree 4 m. tall, (others seen much larger) fruits erect.
- sterile shrub 2 m. tall, strong odor when broken.

- 7 same - bare rock ~~ridge~~ ^{surrounded by} forest, on mountainside.
- 31488 *Cyrtanidium*
common on cliffs and talus in shade
- 3 89 *Andropogon*
common on top of ~~ridge~~ ^{ridge}
- 4 90 *Cyperus*
common on top of ridge
- 6 91 *Fimbristylis*
common on top of ridge
- 5 92 *Jasminum*
common, forming tangles on sides of ridge
- 5 93 *Antennaria anthyllifolia* Lindl.
on top of ridge

The flora of the Bonin Is. is one of the most difficult I have seen from the point of view of knowing whether the plants are native or not. Many of the relationships are with eastern Asia. And it is from there that most of the introduced species were brought by the Japanese. For example, *Casuarina* may be found almost anywhere except in dense primary forest. Bamboos of several kinds are very widely

loose clumps.

small clumps, culms spreading.
spreading tufts.

vine; flowers white, star ~~like~~ shape, very fragrant.

prostrate shrub, flowers white, fragrant.

dispersed and aggressive. Camphor may be found here and there. Citrus also is much at home, and papaya. All of these are a part of the vegetation, yet all were introduced. *Ficus nitida* (?) ~~and~~ is very common around Omura. It was brought by the Japanese. It is called "small leafed gum" while *F. macrophylla* is called "large leafed gum". *Leucaena glauca* was brought by the Japanese after they started their fortifications. (7. 13. 50)

✓ Feb. 13 - ~~to Bay~~ Bay shore
north of Omura

Thickets around old building sites

31494

Hibiscus tiliaceus

common, forming thickets,
~~occasional~~, only seen near
bay shore.

✓ Feb. 13 - Mts. around old
radio station east of
Yankee town ^{200 m. + 15 m.}

peaks grassy and eroded,
seaward slopes brushy
or grassy, the shrubs more
dwarfed the more the exposure,
forest in ravines and

95 *Hypolytrum*

very common in disturbed
open places, mostly
past fruiting at this season.
this specimen from old roadside ditch.

96 *Bidens pilosa* L. var.

common in roadway

97 *Ficus*

occasional in dwarf
forest on ridge.

98 *Psidium cattleianum*

one plant seen beside road

99 *Cyathea*

few plants scattered in
Terna forest on steep slope

small thicket forming tree.
flower clear yellow with part
of petal exposed in bud red,
center maroon stigmas maroon.
"hau" inner bark used for
cordage in old days.

protected slopes. The
composition much
the same in the
brush and forest.

Roll 6 end Roll 7 first 1/2. scenery
Roll E end Roll 7 beginning on m.e.
side. some vegetation.

forming dense ground
cover, spreading by ~~low~~
slender stolons up to
several m. long; leaves cutting-
if not handled carefully.
erect, ray-flowers white,
rather conspicuous.
bushy shrub 2.5 m. tall.

shrub 1 m. tall; fruit
immature.

dried
pinnas
included as
fresh fruiting
mossy fern.

trunk 1.5 m. tall, fronds ^{2.5 m.} long,
scaly at extreme base, stipe 1 m. l.,
thick at base. sp. incl. stipe, 2 basal
pinnas, one central pinna and tip.

- 31500 *Hedyotis*
 grassy exposed ridge over
 ocean, occasional
- 3 01 *Hedyotis*
 same
- 7 02 *Hedyotis*
 same
- 1 03 *Ligustrum*
 common in scrub forest
- 5 04 *Sphenomeris chinensis* var. *biflora* (Kaufl.)
 common in bare earth of road cut
- 2 05 *Hibiscus*
 common in scrub forest

Feb. 13 - Canyon of Yanbuetown
 Walls covered by thick brushy
 woods.

- 6 06 *Laportea*
 occasional along roadside
- 1 07 *Korthalsella*
 in scrub forest, parasitic on (#31486)
 prob. juvenile *P. boninensis* Warb. det. St. John 1968
- 3 08 *Pandanus*
 common in forest at all altitudes
- 1 09 *Smilax*
 occasional in scrub

over

small erect, branching shrub
 1 m. tall, foetid when freshly
 broken, leaves light green;
 calyx in fruit enlarged.

same

same

shrub 2 m. tall: berries
 purple-black.

Totani +
 Ohba

tufts, leaves somewhat
 leathery.

small tree 4 m. tall,
 flowers clear light yellow,
~~with~~ turning red with
 age (perhaps second day), with
 narrow center and stigmas.
 "mountain hani"

stems reddish below,
 flowers white, star-shaped.

joints flattened, plane of
 each branch perpendicular to
 that of parent branch.

(1 in Bist)

tangled vine, fruit yellowish,
 almost globose.

- 31510 *Polystichum*
common on sides of ravine
- 3 11 *Nephrolepis cordifolia*
common on forest floor on
sides of shallow gully
- 4 12 *Salacia?*
occasional in bushy forest
- 3 13 *Wikstroemia*
rare in edge of forest in ravine
- 1 14 *Selaginella*
one tiny colony on wall of ravine
- 8 15 *Korthalsella*
abundant on figuatum
in woods on steep slope; branches
of host dying where heavily infested.
- 8 16 *Smilax*
occasional in brush along
road

from p. 125 Now it forms dense pure
stands in many places, even
in remote areas. Quava
is found here and there
but does not seem very
aggressive. *Eulalia japonica* (?)
is very widespread in
open places, is really the
dominant grass on ridges,
peaks, etc., but is very
difficult to know if native.
It forms a thick but rather
loose mat. Conspicuous

fronds ascending to arching,
glossy; plants tuberiferous.

shrub 2 m. tall; ♀ buds
only.

shrub 3 m. tall.

prostrate.

joints flattened, ^{leaves of} branches
perpendicular to that of parent
branch.

springy vine forming
tangle, young leaves
glaucous, flowers yellowish
green.

is the abundance of *Bryophyllum*
calycinum on eroded rocky
peaks and ridges. It is
deep bronze-red, abundantly
flowering. Old sugar
fields still persist with
cane growing and flowering.
Mostly on slopes up to
45°. Now show some
drought symptoms.

Only running water seen
on e. side of bay, two small streams
with a very small flow from
pool to pool. (see p. 138)

✓ Feb. 14. Mts. east of bay,
above reservoir
thick forest on steep slopes
and ridges, grassy slopes
mostly on side toward bay
ridges and knobs eroded
and bare, dominated by
Bryophyllum calycinum.
One eroded spot with *Helaginella*.

315/17 *Dodonaea viscosa* L.

5 one bush on open eroded ridge

2 18 *Cladium*

rare on open ridges and slopes

1 19 *Blechnum orientale*

one small colony seen in
eroded place

5 20 *Helaginella*

abundant on eroded spot
on high ridge

1 21 *Pteridium aquilinum* (L.) Kuhn

one ~~small~~ colony seen
in opening in forest on high ridge

5 22 *Ptilotum nudum* (L.) Gussel.

small colony on rotten rock
in forest

5 23 *Scaevola frutescens* (Mill.) Krause

high open ridge, seen almost
everywhere on island, up to
mountain tops, except in forests.

3 24 *Rapthrolepis*

common in forests everywhere

Fragaria seen but not
collected as it was sterile.
Tree ferns in occasional
patches, one trunk seen 6 m. tall

Roll (g) a few shots

175 m.

small rounded bush 1 m. tall.

red achenes hanging by
threads, small spreading tuft,
rhizome thick, erect.

rosettes, curling when dry.

most plants dead,
only two ^{green} fronds seen.

shrub 2 m. tall, spreading,
fruiting inflorescence dry,
(only one plant on island
seen in flower, most sterile
or with dry fruit).

shrub 2 m. tall, fls.
pinkish white, fruit
pappiform.

3/5 29

5

one bush seen in brush on ridge

Feb 14. - slopes and ridges
above large bay on east side
of main bay

steep brushy broken wooded ridges

7

26 *Juniperus*

occasional in brushy places on ridge

3

27 *Juniperus*~~Juniperus~~ same

5

28 *Juniperus*

same

3

29 *Pittosporum*

common generally in woods

5

30 *Elaeagnus*common generally, especially
in brushy places.

5

31 *Cinnamomum camphora*^{local}
~~occasional~~ in ravine

5

32 *Cinnamomum doederleinii*

common everywhere in woods

det. Kuntzeanus

2

33 *Pouteria*common everywhere, especially
on ridgesrounded densely branched
bush. fruits reddish green.Roll 7 to end Roll 8 beginning
Roll E to end scenery and
vegetation, mts. & eroded places.♂ small tree 4 m. tall with
dead top, pendent tips. "spruce"♂ small tree, 3 m. tall, small
branchlets pendent "spruce"small tree 4 m. tall, branchlets
pendent "spruce", wood of ^{said} ~~the~~
highly inflammable.tree 5 m. tall, leaves
with undulate margins.All plants seen sterile except
this one which had 3 dry fruits.scandent shrub, branches
tending to be elongate with
reflexed branchlets; fruits

fleshy orange-red, very astringent.

Tree 8 m. tall, leaves glaucous
beneath, camphor odor when
broken; said to have been introduced by
Japanese. ^{sterile.}small tree 4 m. tall, odor of
sassafras when broken."sassafras" used for medicinal tea
in old days.tree 6 m. tall, fruit green,
very rare.

31534

1 common vine everywhere in woods
and on open ridges

3 35 *Ardisia*
common in woods

5 36 *Ligustrum*
common generally, this sp.
is open bushy place on ridge

3 37 *Fimbristylis*
common on open eroded ridges

3 38 *Carex*
common on open eroded ridges

5 39 *Wikstroemia*
common on bushy ridges
(with #31540)

5 40 *Wikstroemia*
common on bushy ridges
(with #31539)

4 41 *Madia thunbergii* S. & Z.
common on ridges and in
woods.

1 42 *Mangifera indica*
common in ravines and lower slopes

5 43 *Geniostoma*
rare on bushy ridge

8 44 *Photinia*
very local on bushy wooded ridge

1 { 45
1 { 46
1 { 47 common in woods on ridge
seeds only, picked up under a
tree with quite thorny petioles.
(see #31548)

tough vine, sap milky;
very rarely fruiting.

small tree, fruits turning red.

shrub 1 m. tall (others
seen as small trees); fruits
dark purple.

caespitose, leaves stiffish.

caespitose.

shrub 1 m. tall, berries
red. (perhaps young
form of #31590)

tree 4 m. tall (perhaps
is old form of #31539)

shrub 2 m. tall (others
seen as small trees); leaves
glaucous beneath, flowers
pale green (most plants sterile).
dense tree 8 m. tall; flowers
pale greenish.

shrub 2 m. tall, flowers

shrub 3 m. tall; fruit
scarlet

palms with trunks closely
scarred (1-3 cm. apart) becoming
smooth and longitudinally fissured.
Thorniness of petioles extremely
variable from tree to tree, even
slightly on same tree. "cabbage palm"

31543

1 damp woods (for data see p. 132)

5 49 *Stachytarpheta indica* folia
lower slopes along road,
in shade but open ground

1 50 *Phyllanthus ~~sinensis~~ debilis* Klein
or Wild.
loose dirt along road

5 51 *Eulalia japonica*
abundant in open places
everywhere, this on roadside

1 52 *Psidium guajava*
fairly common

1 53 *Paspalum ~~distachyon~~ conjugatum*
common locally

1 54 *Digitaria*
common locally on talus and
stone rock slopes

3 55 *Paspalum acrobiculatum*
common locally on talus
and roadsides

5 56 *Cassytha filiformis* L.
rare, parasitic on *Osteria*

1 57 *Polypcias*
around old house site

Above waterfall in other stream
in pools were numerous
snails (*Melania*? see preserved material).

Whole island ~~was~~ as far as
I saw, made up of tuff and
volcanic breccia. Weathered
material is rather sharply

(stone) picked up under cabbage
palm with smooth petiole.

shrub 1.5 m. tall, erect,
leaves rugose; flowers
deep rich purple.

det. G. L.
Webster, 1955

plant purplish green.

large clumps.

shrub 1.5 m. tall; sterile.

culms stiffly erect.

green, leafless, fruits green,
fleshy.

erect shrub 3 m. tall,
sterile, leaves variegated

set off from underlying
rocks. Erosion to bedrock is
consequently very common, especially
on peaks, shoulders, knobs, etc.

The general vegetation pattern is rather simple, in the parts visited.

In the lowlands a much altered forest, now composed of *Ficus nitida*, *Hibiscus tiliaceus*, *Hernandia sonora*, *Calophyllum inophyllum*, ^{mangrove}, etc. - now much invaded by *Leucaena glauca*, ^{and Casuarina} seems to dominate. Much of this is being cleared for gardens.

The upland forest is a mixed type, with *Raphiophloeos*, *Hibiscus*, *Pouteria*, 2 sp. *Laurac.*?, *Ligustrum*, *Cinnamomum*, cabbage palm, *Pandanus*, *Ardisia*, *Ochrosia*, *Terminalia catappa*, ~~Casuarina~~ etc. Where this has been opened up it has been invaded by *Cyrtosperma*, *Casuarina*, several banyans, etc. Where it has been cleared for cultivation, sugar cane is dominant, with often windbreaks of *Calophyllum*. Conspicuous stands of *Pinus* occupy many ridges, patches on slopes, etc. Open areas not planted to sugar, as well as exposed, eroded crests, etc. are largely dominated by *Eulalia*?, and where too bare on this, *Brizopyllum*

Hawking of *Leucaena* seems to be seasonal, only one bunch being noticed in flower now. *Citrus* is common and widespread in forest, esp. around clearings. Bamboo thickets are common. On a few sugar cane dumps seem to approach *S. spontaneum*. Probably seedlings.

calycinum.

On some high but rather protected slopes are patches of *Cyathea*, usually in the general matrix of the forest. On exposed slopes and crests the forest is dwarfed to a dense scrub, but maintains more or less its own composition.

In eroded openings several sedges - *Gahnia*?, *Fimbristylis*, *Cyperus*, ^{grass}, and esp. *Hypolytrum* have taken over. A few trees, such as *Wisteria*, *Eugenia*, *Juniperus* etc. seem to favor these places or their edges more than the forest. *Hibiscus* is able to establish itself. In places that are rather bare *Agave americana* has become well established. Near the large radio station east of Yanketown *Acacia confusa* has become established. It is present in other spots but not thriving especially well. *Leucaena* seems to be the most aggressive species now, forming dense pure stands, producing a carpet of its own seedlings beneath. *Leucaena frutescens* and *Boehmeria* form patches in openings even up to the tops of the mountains.

✓ Feb. 17 - gardens ~~and~~ and
dooryards around village
black cinder soil

31558 *Ocimum basilicum*?
cultivated

~~59 *Cosmos sulphureus*~~
cultivated

59 *Cosmos sulphureus*
cultivated

60 *Zinnia elegans*
cultivated

61 *Gomphrena globosa*
cultivated

62 *Celosia argentea*
cultivated

63 *Cassia alata*
cultivated

64 *Pithecellobium dulce*
occasional, planted

65 *Catharanthus roseus*
common, cultivated and escaped

66 *Datura*
one plant in garden

Feb. 17 - trail around south
side of island, coastal
strip a shelf, mostly
10-20 m. above sea, backed
by cliffs or steep slopes,

67 *Melochia compacta* Hoch.
common locally where strip
is almost at beach level

68 *Paspalum conjugatum*
common along trail

Slopes above plantation at ^{Niccan} ~~ex. forest in ravines + on cliffs~~ ^{near summit}
thence forest near top of peak on w. side.

pleasantly aromatic
herb; stems, bracts, calyxes
maroon; corolla greenish
white.

flowers brilliant orange.

coarse herb 0.8 m. tall;
rays ~~are~~ crimson.

heads ~~are~~ magenta; bushy
branching herb.

herb over 1 m. tall,
tops of spikes magenta.

shrub 2 m. tall; flowers
deep yellow.

sterile shrub 2.5 m. tall.

suffrutescent herb 0.6 m.
tall, flowers magenta.

shrub 1 m. tall, flowers
deep purple, fruit green.

planted to coconuts, with
thick undergrowth of
Pipturus, ~~for~~ *Trema*,
young coconuts, ferns, etc.

shrub or small tree 3-4 m.
tall, flowers red in center,
petals pink distally.
forming dense patches

- 31569 *Hibiscus tiliaceus*
occasional, especially down
near sea level
- 70 *Cyrtandra variegata*
occasional
- 71 *Cyperus cyperinus* (Retz.) Desv.
one plant seen on cinder
bank near trail
- 72 *Eragrostis amabilis* ^{*tenella* (L.) Beauv.}
occasional on base cinders
along trail
- 73 *Desmodium triplorum*
common along trail
- 74 *Colubrina asiatica*
occasional around base of cliff
- 75 *Cyperus javanicus* Houtt.
occasional along trail
- 76 *Xanthosoma sagittifolium* (L.) Schott
planted occasionally
- 77 ~~*Grewia*~~ ^{*newburnii*} *oppositifolia* (Lam.) ~~Forst.~~
common tree, especially
near base of cliff
- 78 *Casuarina equisetifolia* L.
common tree, especially
on cliffs and bluffs
overlooking ocean
- 79 *Asteris quadrantha* Retz.
common everywhere
- 80 *Hedyotis biflora*
occasional in trail
- 81 *Zoysia tenuifolia*
common abundant locally
- 82 *Portulaca oleracea* L.
occasional along trail

sterile shrub 3 m. tall.

shrub 2 m. tall
flowering when almost
leafless, flowers scarlet.
tuft

spreading tufts

prostrate; sterile.

semi-scandent shrub;
sterile.

small tufts, leaves
glaucous.

herb 2 m. tall; leaves
glaucous beneath, dull above.
tree 5 m. tall; flowers
white, very fragrant;
fruit mostly immature.
tree 10 m. tall.

prostrate; flowers white.

forming dense turf
in open places.
spreading; fleshy.

- 31583 *Dactyloctenium aegyptium*
common along trail
- 2 84 *Lepturus repens* var. *repens* Forb.
one small patch on top of
bluff over ocean
- 1 85 *Ricinus communis* L.
very local in plantation
- 1 86 *Pipturus argenteus*
dominant plant in understory
- 5 87 *Cenchrus brownii* R+S.
common along trail
- 1 88 *Capsicum frutescens* L.
common generally
- 3 89 *Crotalaria ~~richmondii~~ ^{gallipada} Desv.*
abundant in opening, and
along trail
- 1 90 *Carica papaya* L.
common generally
- 1 91 *Morinda citrifolia* L.
common generally in undergrowth
- 2 92 *Polypodium scolopendria* Burm.f.
abundant in undergrowth
- 3 93 *Nephrolepis bisectula*
abundant locally in undergrowth
- 3 94 *Hyptis pectinata*
common along trail
- 1 95 *Pseudelephantopus spicatus*
rare along trail
- 1 96 *Achyranthes aspera*
local along trail
- 5 97 *Hedyotis foetida* var. *marianensis*
local on ^{bluff} ~~cliff~~ of great broken lava rocks

spreading tufts

spreading, matted.

shrub 2.5 m. tall.

shrub 3 m. tall.

fruits scarlet, flowers
pale green.

erect suffrutescent herb
2 m. tall; flowers yellow
with brown lines.

erect herb or tree, 3 m. tall (up to
10 m.), ♂, flowers cream yellow.
all seen were of weedy variety
with very small fruit.

shrub 2.5 m. tall; leaves
glossy.

rhizome prostrate, prode
erect.

rhizomes and prode erect.

aromatic herb 1.5 m. tall.

erect, flowers purple.

shrub 0.6 m. tall, foetid when
broken; flowers white.

- 31593 *Decasuria amaranthoides*
on bluff of great broken lava rocks
- 5 95 *Callicarpa candicans*
common on bluff of great lava rocks
- 31600 *Achyranthes velutina*
rare, on ledge of lava cliff
- 3 01 *Eugenia reinwardtiana*?
rare, on bluff of great broken lava rocks
- 6 02 *Ternstroemia orientalis* var. *argentea*
common generally
- 7 03 *Melanolepis multiglandulosa*
common generally
- 7 04 *Vigna marina*
common generally, especially seaward.
- 5 05 *Oplismenus compositus*
common generally
- 5 06 *Digitaria ciliaris*
local in open places along trail
- 3 07 *Ternstroemia catappa* L.
one tree seen with buds
(other, sterile, common, perhaps different)
on sea cliff
- 5 08 *Phyllanthus marianus*
very local near seaward edge
- 1 09 *Portulaca sarmentosa* ~~velutina~~
rare, one tiny colony seen
on ledge of tuff cliff
- 2 10 *Davallia solida* (Forst. f.) Sw.
occasional, on tuff cliff
- 1 11 *Asplenium nidus* L.
common generally, terrestrial,
thinner on tuff cliff

scandent shrub climbing
over other vegetation, flowers
green, fruits turning pink.
weak shrub, flowers purple.

shrub 1 m. tall, flowers
white.

tree 5 m. tall, ripe fruits
maroon

tree 6 m. tall, fruit sooty brown,
racemes pendent.

vine climbing in trees

prostrate, forming
loose mat, leaves creeped,
spreading & ascending.

small tree 3 m. tall,
buds only.

erect shrub, scarcely
branched, 1 m. tall.
fleshy, spreading, sterile

rosette, fronds ascending

- 51612 *Ficus tinctoria*
 5 common, especially
 around bases of cliffs
- 5 13 *Wedelia biflora*
 abundant in open places
 and under trees near seaward
 edge of strip
- 2 14 *Emilia sonchifolia*
 common locally along trail
- 5 15 *Psychotria mariana*
 common generally in understory
- 1 16 *Alnus precatensis*
 common, tangled in trees
- 1 17 *Opuntia ~~umbellata~~ ventricosa*
 common, climbing in
 other vegetation

Feb. 17 - canyon on east side
 of island

- 2 18 *Alocasia macrorhiza* (L.) Schott
 common in gorge bottom
- 5 19 *Boehmeria*
 common on walls of
 gorge
- 5 20 *Piper grahamense*
 common on bottom of upper
 part of gorge
- 5 21 *Peperomia*
 common on vertical scoria walls
- 5 22 *Asplenium unilaterale* Lam.
 common locally on banked gorge
- 23 *Angiopteris evecta* (Forst.) Hoffm.
 occasional in upper gorge bottom

scrubby tree; figs immature

scrambling herb,
 forming low tangles,
 resinous odor when broken,
 flowers yellow.

small tree 4 m. tall;
 flowers white; fruit red when ripe.
 vine

extensive vine; flowers
 pale yellow, anthers just
 starting to burst.

High slopes all *Miscanthus*, forest
 in ravines and canyons.

petiole, bracts purple,
 leaves glossy green, erect.
 shrub 1-2 m. tall, leaves
 rugose.

shrub 2 m. tall, somewhat
 aromatic, spikes erect, white.

fleshy, spikes erect.

bottom

fronds arching 11-15 m. long, 2-3 m.
 broad, from erect base, shaped like *Agave*, *Stylidium*.

- 3 1624 ^{Bolbitis} ~~Campylopus~~ *Campylopus* *g. usque*
common on banks in upper gorge bottom
- 3 25 *Lycopodium Ctenitis subglandulosa*
occasional on banks in upper gorge bottom
- 3 26 *Althya* *inermis*
rare on scoria cliffs
- 1 27 *Trey cincta*
common in upper part of gorge
- 1 28 *Miscanthus floridulus*
dominant on upper slopes
- 1 29 *Geniostoma micranthum* var. *micranthum*
rare in gorge bottom
- 1 30 *Lophosiphium biflorum*
rare on scoria walls
- 1 31 *Agave maria nensis*
common on canyon bottom and side
- 3 32 *Psychotria mariana*
common generally
- 4 33 *Lycopodium Thelypteris opulenta*
occasional at base of cliffs
- 1 34 *Anticarsus altilis* (Palk.) *Leob.*
common on upper sides of canyon
- 1 35 *Flagellaria indica*
common in canyon
- 1 36 *Barringtonia asiatica* L.
common lower part of canyon
- 1 37 *Mimosa*
common in lower part of canyon
- 3 38 *Pandanus tectorius* Palk.
upper canyon wall

sterile
tips of fronds tending to proliferate, fertile ones erect.
rhizome short, erect.

rhizome pendent, ascending, at tip, about 25 cm. long.
vine, forming tangles, bracts orange, inner ones eaten away (by rats?) large clumps.

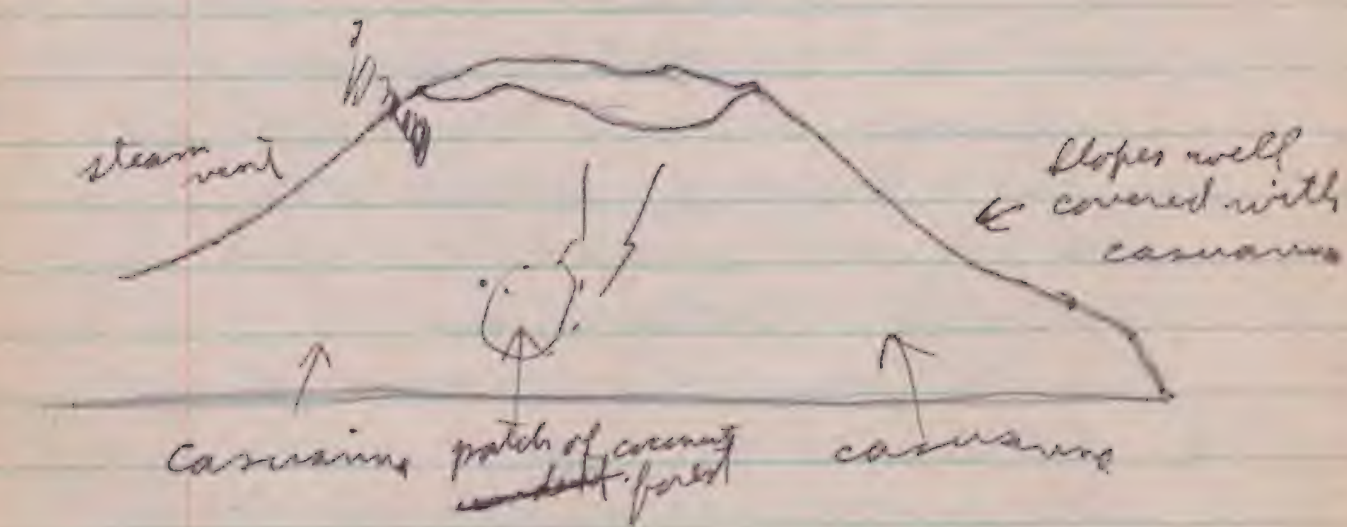
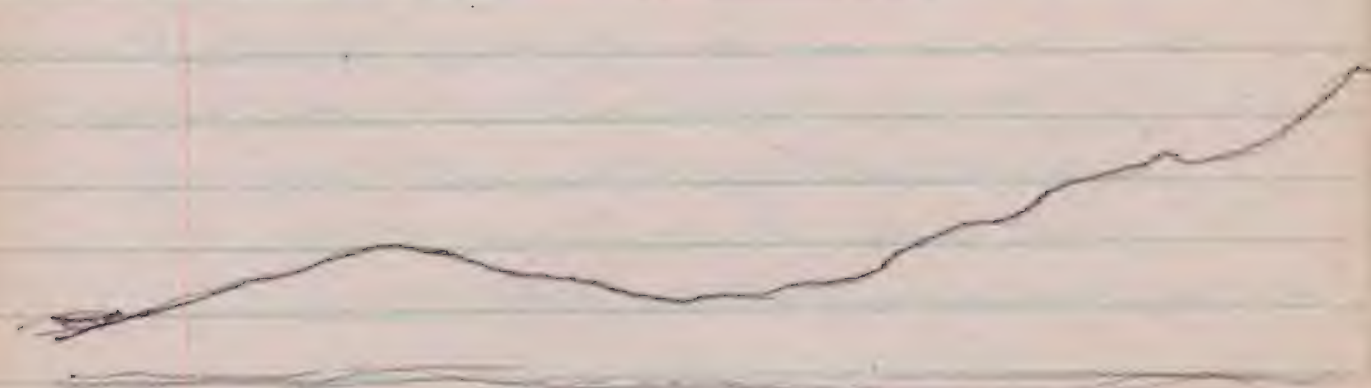
shrub 1 m. tall

small tree 4 m. tall, sterile
(others seen up to 10 m. also sterile)
shrub 2 m. tall, flowers white, ripe fruit red.
rhizome embedded in scoria, fronds ascending.
tree

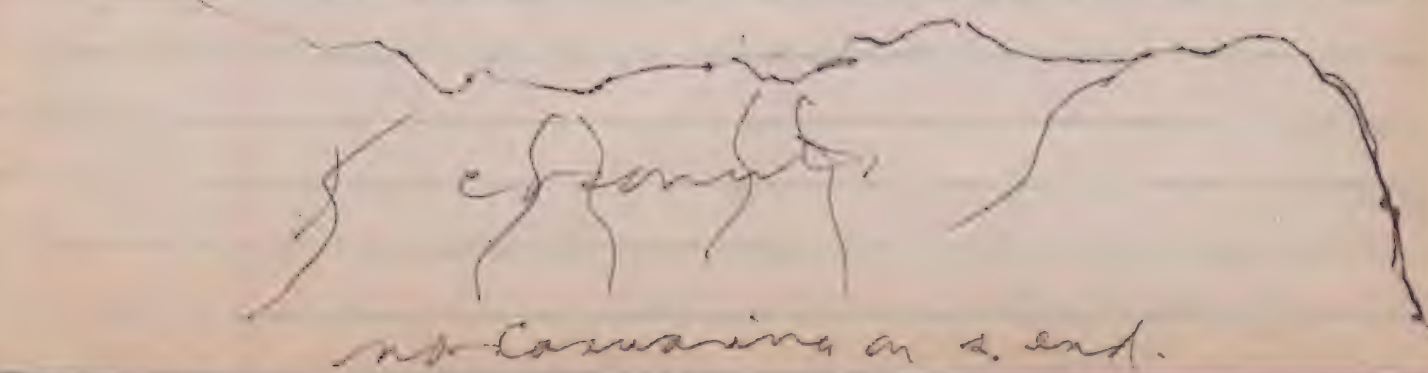
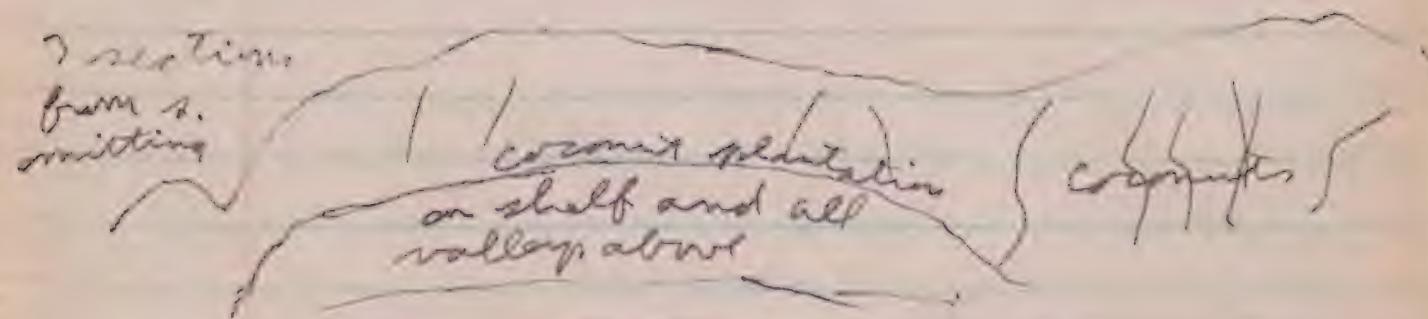
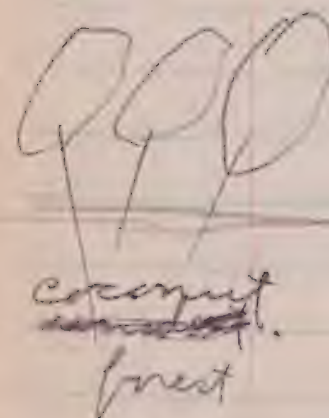
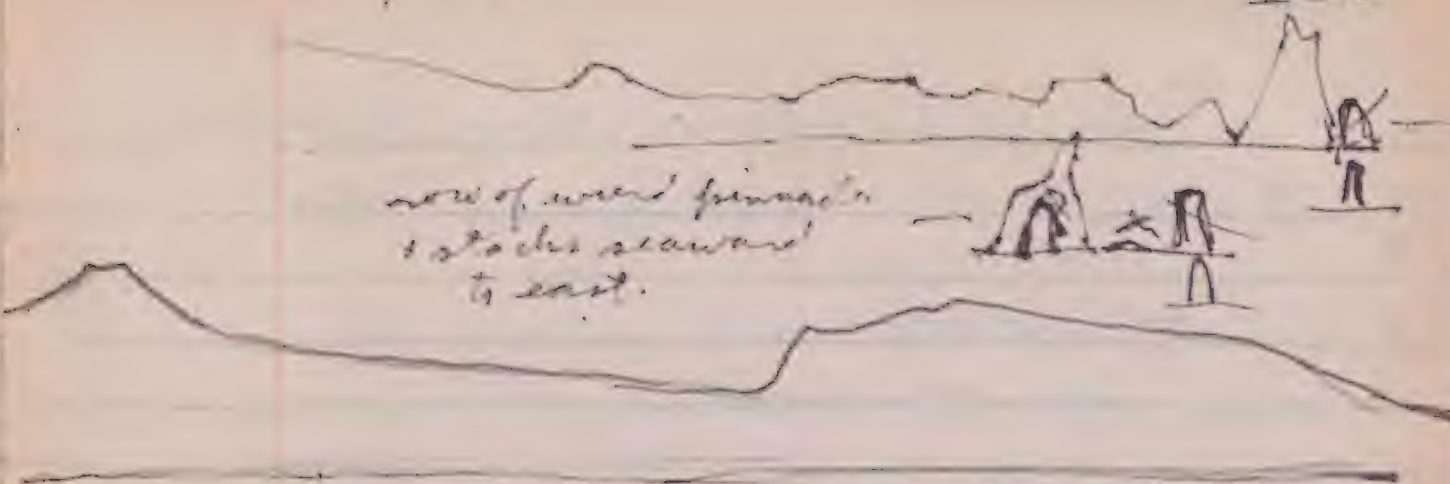
extensive vine, climbing with curling leaf tips, sterile.
trees of all sizes, fruit orange-red.

tree 10 m. tall (fruit orange-red).

tree 6 m. tall, fruit orange-red.



South end has no forest of any consequence, nor any limestone. High ridges and slopes Miscanthus. Cliffs bare or Miscanthus. Everything else planted to coconuts. S. end. banded tuff and lava.



- ✓ Feb. 13 roadside near landing
 31639 *Panicum ambiguum* Trin.
 3 rare
 3 40 *Heliotropium*
 occasional

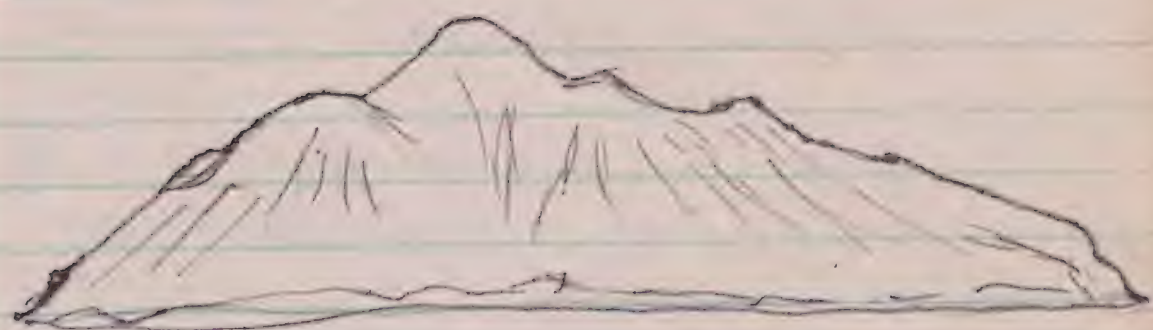
White cliff on east side about
 midway. Not seen closely
 enough to say if limestone.
 Has dark talus at base.

Cmde. Gray says a similar
 white layer (of hard rock) 8-10
 ft. thick inside crater of
 Mt. Pagan.

Also says there are about 50
 acres of cotton, with windbreaks.
 Breadfruit also found, as
 well as oranges + bananas.

spreading tufts, prostrate

flowers white.



from north

upper slopes mainly *Miconia*
lower slopes mainly wooded.
wooded ravines running far
up on upper slopes. Middle
slopes of main volcano have
sparse low woody vegetation

✓ Feb. 13 - Around Pardedo Village
in open coconut plantation
and gardens

21641 *Cyperus javanicus* Houtt.
occasional on open slopes
above ocean cliffs.

2 42 *Portulaca oleracea* L.
~~occasional~~ common on cliffs above sea

1 43 *Callicarpa candicans*
rare on sea cliffs

2 44 *Eragrostis amabilis* Tenella
occasional on open ground
at top of bluff

2 45 *Ipomoea pes-caprae*
common on sea bluffs

1 46 *Casuarina equisetifolia* L.
only seen on sea bluffs

Gently sloping peninsula
to north is a rough
lava flow apparently
originating at the base
of the main volcano.

It is covered by a vegetation
of *Pipturus*, *Ficus tinctoria*,
Melastoma, *Hibiscus*
tiliaceus, *Claoxarpus* (more
common toward head of
flow), *Morinda citrifolia*,
Psychotria mariana, etc.
with sparse undergrowth.
Asplenium nidus & *Polypodium*
scotopendria abundant
under trees.

small tufts, leaves dull,
gray-green.

fleshy, prostrate to ascending.
sterile shrub.

spreading tufts.

prostrate, flowers purple.

tree 4 m. tall, sterile.

- 31647 *Thespesia populnea*
a few small trees on top of sea bluff
- 48 *Euphorbia hirta*
common weed in gardens
- 49 *Vernonia cinerea*
common weed in gardens
- 50 *Phyllanthus ~~hirsutus~~ amarus* Schum. & Th. det. G. L. Webster, 1955
common weed in gardens
- 51 *Eleusine indica* (L.) Gaertn.
common weed in gardens
- 52 *Catharanthus roseus*
abundantly cultivated
- 53 *Amaranthus viridis* L.
abundant weed
- 54 *Solanum melongena* L.
sparingly cultivated
- 55 *Canavalia microcarpa*
Feb. 13 - Forest on lava flows
- 55 *Canavalia microcarpa*
megalantha Merr. var.
- 56 *Ficus tinctoria* Forst. var. *robusta*
common in forest
- 57 *~~Mexosiphia~~ oppositifolia* (Lam.) Fock. & Schum.
occasional in forest
- 58 *Hibiscus tiliaceus*
common in forest
- 59 *Polypodium scolopendria* Burm.
abundant on lava in shade of forest
- 60 *Asplenium nidus* L.
abundant on lava in shade of forest
- 61 *Morinda citrifolia*
common in woods and in plantation

shrubby tree 3-4 m. tall.

stems ascending.

flowers purple.

erect.

suffrutescent herb 0.7 m.

tall, flowers magenta

(white form also seen)

prostrate or weakly ascending

large, much branched herbs

flowers lavender, fruit

narrow.

vine climbing in brush

fruit green; bud purple.

small scraggly tree;

sterile.

tree 6 m. tall, fruit green.

small tree 6 m. tall, very

crooked stem.

rhizome prostrate; fronds erect;

fertile ones almost all battered & old.

settles, fronds ascending to erect,

fertile ones with fertile part frayed.

small tree 3-4 m. tall, leaves

glossy, flowers and fruit, white.

- 3/662 *Guamia marianae*
one small sterile tree seen in forest
- 5 63 *Melanolepis multiglandulosa*
one of commonest trees in forest
- 5 64 *Psychotria mariana*
common in forest
- 5 65 *Pteris quadriaurita*
common locally in forest, terrestrial
- 5 66 *Pipturus argenteus*
abundant in forest, dominant
- 1 67 *Piper batte*
one small patch seen on edge of forest
- 3 68 *Capsicum frutescens* L.
common along trail in forest
- 5 69 *Trema orientalis* var. *argentea*
common in forest on higher part of plateau
- 5 70 *Scleria lithosperma* (L.) Sw.
occasional in forest on rocks,
especially near upper part of flow
- 5 71 *Erythrina variegata* var. *orientalis*
occasional in forest
- 3 72 *Blechnum brownii* f. *puberulum* Leonard
abundant along trails and
in plantations, forming almost
pure stands on ground cover.
- 5 73 *Randia cochinchinensis* Lam.
common in forest
- 5 74 *Paspalum*
occasional, epiphytic on tree trunks
in forest near head of flow.
- 1 75 *Clusia asiatica*
common locally in forest

tree 3 m. tall

small tree 6 m. tall, young
fruit sooty greenish brown.
shrub 2 m. tall, flowers
white, fruit red when ripe.
rhizome short, erect.

small tree 5 m. tall, fruit
white, fleshy.
vine climbing over trees; sterile;
leaves ~~flat~~ ^{acid} when chewed.
erect herb, flowers
pale green; ripe fruit red.
small tree 6 m. tall; ripe
fruits almost black.
small tufts, culms arching,
fruit white.

tree with very ascending
branches, flowering when
leafless, flowers scarlet.

shrub 2 m. tall, flowers
white, fragrant.
fleshy, pendent from tree.

semi-scandent shrub,
fruiting portion leafless.

- 31676 *Davallia solida*
5 climbing on tree trunk in forest
- 1 77 *Taeniophyllum marianensis*
on branches of *Elaeocarpus* tree
- 3 78 *Scaevola frutescens*
78 *Peperomia*
on rocks
- 5 79 *Agave*
common in forest
- 5 80 *Premna* ^{*obtusifolia* (L.) (Othone lvs.)}
isolated tree on grassy slope
- 5 81 *Pouteria obovata*
common in edge of forest
- 1 82 *Hedyotis pictata*
rare on lava ridge in open
- 5 83 *Geniostoma micranthum* var. *micranthum*
rare on lava ridge
- 3 84 *Ficus prolixa* var. *subcordata*
rare on lava ridge
- 3 85 *Cassytha filiformis*
rare on shrubs on open lava ridge
- 3 86 *Scaevola* ^{*argentea*} ~~*frutescens*~~ (Mitt.) Her.
common on open lava ridge
- 5 87 *Phyllanthus marianensis*
common on open lava ridge
- 3 88 *Ageratum conyzoides*
edge of forest
- 3 89 *Cantharis* ^{*argentea*} ~~*frutescens*~~ *scarabaeoides*
edge of forest, on grassy slope

roots flat, green, fruit and buds green.

fleshy

small tree 1 m. tall, flowers yellow.

small tree 4 m. tall, flowers pale green.

small tree 4 m. tall, leaves gray.
shrub 6 m. tall, pale green, foetid when broken.
shrub 1.5 m. tall.

figs shrub 1 m. tall, almost leafless; figs green.
green, leafless, tangled; flowers white, fruit green.
spreading shrub 1 m. tall; flowers white.
erect shrub, unbranched, 1 m. tall.

twining vine.

- Feb. 18 coconut plantation,
cleaned fairly free of brush.
- 31690 *Amaranthus dubius*
common weed
- 91 *Malvastrum corrandelianum*
occasional weed
- 92 *Citrus aurantifolia*
thicket in plantation
- 93 *Nicotiana glauca*
planted in clear places
under coconut trees
- 94 *Xanthosoma sagittifolium* (L.) Schott
commonly planted under
coconut trees
- 95 *Abrus precatorius*
common weed generally
- 96 *Ipomoea stictocardia* ~~complanata~~
common under trees
- 97 *Barringtonia asiatica*
occasional
- 98 *Carica papaya*
abundant weed generally
- 99 *Nephrolepis hirsutula*
common locally
- 31700 *Triumfetta semitriloba*
one much trampled plant seen
- 01 *Capizicum frutescens*
one plant seen, planted.
- 02 *Sida acuta* L.
uncommon

- erect herb up to 1 m. tall
(note difference in spininess)
herb 1 m. tall, flowers
orange-yellow.
- ~~flower~~ small tree, strong
lemon scent when broken;
flowers white, very fragrant.
- erect herb 1 m. tall, corolla
limb pink.
- up to 1.5 m. tall, leaves
dull, glaucous, especially
beneath. "brolulu" (Hondulu?)
cultivated for edible rhizome.
vine, very tough stem,
climbing in trees and
shrubs, flowers purple.
- wine, extensively creeping,
flower purple.
- small tree, 5 m. tall, sterile.
- unbranched till up to
6 m. tall, all seen were of
small-fruited wild var.
rhizome and fronds erect.
- herb 1 m. tall. flowers yellow.
- shrub 0.6 m. tall, flowers
white, ripe fruit red.
- herb, much branched, 1 m. tall,
attached by suckers.

Feb. 19



cliffs and ravines with
woody vegetation. Low shelf
to right completely planted to
coconuts. Other slopes grassy
but higher ones on volcano
with very sparse scattered
woody veg.

The ravines are wooded
with *Ficus tinctoria* and *F. prolixa*,
Pipturus, *Hibiscus tiliaceus*, *Morinda*,
Melanolepis, with occasional
Plumna, *Claoxypus*, *Pouteria*
toward head. *Merremia* and
Abrus are common vines, with
Freyinetia toward head.

Polypodium scolopendria and
Asplenium nidus very common
on rocks under tree forest.

not much other undergrowth
Walls of ravines, cut in
coarse granular ash or cinders,
tend to be vertical.

Pteris less common.



shore very rocky.
Just above rocks on talus,
where there is talus, is a
thicket of *Hibiscus tiliaceus*
that almost defies penetration.

Cliffs and top of beach covered
by *Sporobolus percapitatus* and
Wedelia. *Hedyotis* common on
cliffs. *Terminalia catappa*
common on cliffs & talus, also
Pandanus (these ascend
mountains too.) *Cassytha*
here and there on cliffs.

Soil in ravines and plantation
tests about pH 7.

No *Passiflora foetida* seen
on Alamagan.

Coconuts planted first
about everywhere here where
they could grow. Don't seem to
bear as well high up.

Triumfetta is the dominant
weed here in plantations. Ground

South end is a high bluff with tremendous recent landslides and great talus slopes at base - ~~quite~~ almost without vegetation, of a tan colored material.

Feb. 19 Vicinity of Asangsong Village

bluffs just above ocean

9-15 m.

- 31703 *Timbristylis cynnosa*
crevices in tuff cliff
- 04 *Pandanus tecturus*
occasional on talus and cliffs
- 05 *Pouteria pectinatus*
on talus just out of reach of waves
- 06 *Callicarpa candicans*
on rocks just above waves
- 07 *Hedyotis forsteriana marianensis*
on cliffs, common
- 08 *Wedelia biflora* v. *argentea*
common on cliffs
- 09 *Joyzia tenuifolia*
common carpeting tops of cliffs and ledges.

same - village and plantation

- 10 *Dactyloctenium aegyptium*
in path, common

- 11 *Digitaria ~~bisorensis~~ radicans*
occasional in plantation

small tufts - *raphanostylis*
dead.

tree 10 m. tall; fruit green.

tree 3 m. tall, bushy, fruit green.

erect shrub, flowers purple

shrub 2.7 m. tall, flowers white.

scandent herb, flowers yellow.

forming dense soft turf.

spreading tufts

prostrate

- 31712 *Digitaria* ^{setigera} ~~pruriens~~ var. ~~pruriens~~ ^{pruriens} approaching var. ~~pruriens~~ ^{pruriens}
opening above cliff
- 13 *Digitaria* ^{setigera} ~~pruriens~~ var. ~~pruriens~~ ^{pruriens}
opening above cliff
- 14 *Euphorbia* ~~prostrata~~ ^{thymifolia}
in trail
- 15 *Cenchrus* ~~setosus~~ ^{brownii R. & S.}
in plantation, occasional
- 16 *Cassia* ~~sophera~~
rare in plantation
- 17 *Pachyrhizus* ~~erosus~~
common around edges
of village
- 18 *Hypoxis* ~~pectinata~~
common around village
- 19 *Lida* ~~acuta~~ L.
common in plantation
- 20 *Lida* ~~spinosa~~
common in plantation
- 21 *Jasminum* ~~coronatum~~ ^{marianum DC.}
rare in plantation, only one or
two young plants seen
- 22 *Operculina* ~~umbellata~~ ^{ventricosa}
common generally in thickets
- 23 *Commelina* ~~bengalensis~~
common in open places in
plantation and village
- 24 *Lida* ~~hornbifolia~~ L.
common about village
- 25 *Benincasa* ~~hispidula~~
occasional about village

- ^{microbachne}
prostrate to ascending
- prostrate to ascending
- prostrate
- culms ascending
- erect, flowers yellow.
fruit terete (only one seen).
vine climbing over
other vegetation
- erect herb 1 m. tall, aromatic
flowers whitish.
- erect suffrutescent herb,
1 m. tall, leaves with mildew.
(with # 31720, no intergrades seen)
- erect suffrutescent herb
1 m. tall, flowers yellow.
(with # 31719, no intergrades seen)
- sterile.
- extensive vine.
- prostrate, open flowers
lavender, cleistogamous ones pale green.
- erect suffrutescent herb, 1 m. tall.
- vine, flowers bright yellow,
fruit very glaucous when
not quite ripe.

- 31726 *Triumfetta semitriloba*
common in village and
dominant weed in plantation
- 27 *Clitoria*
common about village
and in waste spots nearby

same - wooded ravine
above village

- 28 *Dolichos lablab*
common in outskirts of village
- 29 *Ricinus communis* L.
common in village
- 30 *Crotalaria* ^{pallida nit.} ~~var. mucronata~~ Desv.
occasional around village
- 31 *Ipomoea indica* (Burm.) Merr.
rare in village
- 32 *Mangifera indica* L.
rare in village, in ravine
- 33 *Ficus tinctoria* var. *neobadanum*
common generally
- 34 *Annona reticulata* L.
rare in plantation
- 35 *Cyrtanthus compositus*
occasional in plantation,
(also in forest)

erect herb, up to 2.5 m. tall,
flowers yellow.

vine, flowers bright
blue.

vine twining over weeds,
flowers lavender

erect herb 1.5 m. tall,
flowers green. stigmas
reddish.

erect herb 1.5 m. tall,
flowers yellow with brown lines.

vine, flowers pale blue.

tree 6 m. tall, flowers
greenish yellow.

small tree; fruit
yellow, turning red soon
when dead-ripe.

tree 7 m. tall, fruit
dark red when immature.

prostrate, leaves
crisped.

sane - wooded ravine
above village, woods
of *Pipturus*, *Ficus*, *Melanolepis*, etc.

- 3/7 36 *Artocarpus altilis* (Park.) Fosb.
several trees in ravine bottom
- 5 37 *Ficus prolixa* var. *carolinensis*
shrub on wall of ravine
- 5 38 *Ficus prolixa* var. *carolinensis*
rare in ravine bottom
- 2 39 *Polyscias grandifolia*
occasional in ravine bottom
and on walls, in undergrowth
- 5 40 *Claoxycarpus* ~~zogg~~ ^{branches of}
rare in upper ravine

- 1 41 ~~*Leucaena*~~ ^{*Neisosperma*} *oppositifolia* (Lam.) ~~W. & A.~~ ^{Fosb. & Fosb.}
occasional
- 6 42 *Pouteria obovata*
common in upper branches
of ravine
- 1 43 *Terminalia catappa*
occasional
- 1 44 *Miscanthus floridulus*
forming dense matted brake
above forest on sides, dominant
plant on open slopes
- 1 45 *Heteropogon contortus*
to top of vertical walls,
common
- 1 46 *Fragaria nemoralis* Mark.
common in upper branches of ravine

tree 10 m. tall

shrub 3 m. tall, figs green.

large banyan, leaves
very young, figs green, rare.
sparsely branched
shrub 2.5 m. tall.

large rounded tree, 15 m.
tall, ~~old~~ old leaves turning
bright red; flowers white;
fruit bright blue, glossy.
tree 6 m. tall; fruits on
ground beneath.
large rounded tree, 15 m. tall;
fruit rare, green.

tree 7 m. tall, leaves almost
all shed, scarlet - picked off ground.
2 m. tall, all seen sterile.

tufts.

vine, all seen sterile.

same, - village + plantation

31747 *Pathocellobium dulce*

planted in village

48 *Desmodium triplorum*

bare spots in plantation

49 *Lynedrella nodiflora*

along trail, occasional.

shrub 2.5 m tall

flowers greenish.

prostrate.

~~occasional~~ erect, flowers
yellow.

1950 Hydrometer readings
for sp. gr.

page	Locality	date	source of H ₂ O	reading
32	Agaña Swamp, Guam	Jan 25	stagnant channel	1.002
62	Lake Lucero, Saipan	Feb. 3	Lake	0.999
	"	"	"	1.000
	"	"	"	0.9995
	Rain water, Saipan			1.003
	Saipan tap water, Chalan Kanan			

✓ Feb. 21 - ^{any} Ditzgenyama Ridge north and south ridge of volcanic breccia or conglomerate with coral limestone low on its flanks, and with a thin strip of coral capping along the west side near the top. The material weathers into a mottled red and blue clay. On a large flat denuded area of this the surface layers (in dry weather) are puffy and air-filled, showing, apparently, that the water-content was high.

This clay, in bare spots, ^{at several depths} tested pH 5 or lower. Around edges where grasses (mostly *Chrysopogon* and *Paspalum scrobiculatum*?) are invading the same sort of material, tests made on soil taken from among the grass roots yielded a new range varying from pH 5.5 to pH 6.5.

Apparently the humus produced by this vegetation tends to be less acid than the material resulting from decomposition of this (dyalite, etc.) rock. Quartz granules up to the size of peas are abundant here in the soil, limonite concretions also.

The vegetation here, before last April, was *Miscanthus*, invaded and in places dominated by *Casuarina equisetifolia* and *Acacia confusa*. The parts of this still remaining show that these woody species are able to come up and make a healthy growth, shading the grass, which becomes loose and lanky. Possibly it would eventually be ~~completely~~ shaded out. Last April a large fire burned over most of this area. The trees were completely killed. The grass ^(*Miscanthus*) now occupies the ground completely. It was evidently only burned off without injuring the roots.

On the west break of the hills there are eroded areas, in part exposing the thin limestone cap, in part in pure volcanic material. *Chrysopogon*, ~~*Phyllanthus*~~ ^{*Miscanthus*} and *Scaevola frutescens* are on both. *Dodonaea* rare but seen on limestone.

Heteropogon, *Glossogyne fimbriatilis*, *Gleichenia*, *Euphorbia*, *Centropogon*, *Lycopodium scandens*, etc. confined to volcanic soil.

Boundaries sharply defined. *Phyllanthus* only seen on limestone.

- 31750 *Scaevola frutescens* (Mill.) Kr.
 4 common in open somewhat
 eroded country on both
 limestone and volcanic soil.
- 4 51 *Euphorbia*
 common on bare spots on
 volcanic soil
- 3 52 *Gleichenia linearis*
 common on volcanic soil
- 2 53 *Phyllanthus*
 common on limestone
- 1 54 *Glossogyne tenuifolia*
 occasional on bare spots
 on volcanic soil.
- 3 55 *Heteropogon contortus*
 common on volcanic soil
- 1 56 *Fimbristylis*
 occasional on volcanic soil
- 4 57 *Lygodium scandens*
 occasional on volcanic soil
- 3 58 *Cantharospermum*
 common on volcanic soil

Bunke (geologist on Taiwan and
 Tinian survey) says many
 of limestones on Taiwan are
 much mixed with
 volcanic material,
 apparently detritus deposited
 when the lowest reefs were
 formed. This type of limestone

rounded shrub 1-m.
 tall; leaves leathery; flowers
 white with purple lines;
 fruit white, fleshy.
 erect; flowers white.

dwarfed here, in some
 spots seen much more
 luxuriant.
 erect dwarf shrub;
 leaves stiff-coriaceous,
 sensitive.

tufts

small tufts.

rhizome underground,
 fronds tangled.
 small plants to ~~about~~ tangled
 vines, leaves gray-green,
 especially beneath.

may be the origin of the
 deep red clay soils on the
 limestone beds on the e. side
 of the island. Of course there
 is always the possibility
 of detrital deposit of volcanic
 material on the limestone, then
 subsequent weathering.

✓ Feb. 22 - Chalan Kanoa
coral sandy bottom of lagoon
in about 1 m. of water

31759 *Thalassia hemprichii*
common

10 60 *Halophila*
common, forming turf

✓ Feb. 23 - Kohler Field
3 61 *Indigofera endecaphylla*
on large patch on coral debris

✓ Feb. 23 - San Antonio
roadside

5 62 *Indigofera suffruticosa* Mill.
common

3 63 *Malvastrum coromandelianum*
common

✓ Feb. 23 - ~~Ata~~ hills above Tanapag
old coral quarry
5 64 *Dryopteris*
common in open full sun
in crevices and on top of rocks

✓ Feb. 23 - ~~Ata~~ Laderan Tagpochan
a coral limestone ridge
~~not~~ bounded on both
sides by cliffs, culminating
in Agso Tagpochan, 1555 ft.
This ridge is partly wooded
with *Pandanus* (2 sp.), *Aglaia*,
Pisonia umbellifera, *Guamnia*,

rhizome buried; sterile

rhizome buried, fruit
globose. leaves translucent,
venulose.

prostrate herb, forming
a deep mat; flowers red.

shrub, 1 m. tall, flowers
reddish.
branched herb.

rhizome creeping,
slightly buried in
debris.

Ochrosia, *Claoxylon*, *Polyscias*, etc.
The limestone beneath is extremely
rough. *Iporroea* and *Mucuna*
cover this forest in an immense
tangle. The forest has
been badly battered during
the war, and presents an
extremely bedraggled appearance.

The top is plateau like, but in the form of terraces, with grassy areas, probably former farms, on them, and much war construction, especially on the topmost peak.

The top is open on the windward (east) side, and covered with *Miscanthus*, growing on bare limestone. The soil around its roots tested bet. pH 7 and 7.5. None of its common associates were present. *Phyllanthus marianensis*, *Dryopteris guthriei* (?), and several weeds grow with it. The stand is quite

ridge ~~north~~ of peak

- 31765 *Antigonon leptopus*
planted around dwelling
- 6 66 *Hippobroma longiflora*
roadside weed
- 2 67 *Alocasia*
colonies in edges of forest

thick. Little black wasps and large black ants were present.

It will take the forest here some time to regain its normal condition. It also shows evidence of considerable battering from wind. It is fairly penetrable, except for the rough substratum, the sharpness of which is concealed by vines and, in openings, grass.

Snails (*Achatina*) are common, but live ones few in comparison with dead ones, and with number observed in 1946.

Rod. roll 9

350 m.

wine with rose-pink flowers.

herb, stem prostrate, ascending near tip, up to 2.3 m. long, fls. white stems up to 1 m. tall, leaves up to 4 dm. long, petioles deep purple, leaves clear green, spathy pale green, darker in closed lower part, spadix buff, white in flowering part, turning pinkish, odor somewhat bad.

Page.	Locality	Date	Time	wet b.	dry b.
	Kwajalein Isld.	Jan 21	8:20 am.	77.5	82
	"	"	"	76	82
	"	"	"	76	81.5
16	Bigej	"	1:10 pm	80	88
16	"	"	"	78.5	84
	"	"	"	78	83
	"	"	1:15	78	85
	"	"	1:20	79.5	85.5
24	Guam	J. 24	11:45	79.5	96
	"	"	"	80	87.5
	"	"	11:50	76	85
	"	"	"	78.5	85
	"	"	12:15	78	88
26	" coral pit	"	3:40	76	86
	"	"	"	77	86
	" Radio. Fante R.	26	3:45	76	85
				75	81.5

inside BOQ.

porch of BOQ exposed to sea breeze
outside, broken sunlight, sea breeze
sparse coconut pl. 0.5 m. from
ground

ground under coconut trash
" " Wedelia

Open sun + wind. Waist high
sparse coconut pl. 0.5 m. from g.

full sun

in shade in undergrowth of thicket
same, deeper in thicket.

" broken sun in thicket

full sun and breeze

full sun, open.

in sparse jungle on limestone

Waist high in reed brake

ground level in reed brake

- 31768 *Discozalys*
in edge of forest in undergrowth
- 69 *Discozalys*
in edge of forest in undergrowth
- 70 *Claoxylon*
in forest, rather common
- 71 *Ochromia oppositifolia* (Lam.) K. Schum.
common in forest
- 72 *Youngia japonica*
common on coral along road

upper peak and vicinity
large area of *Miscanthus*
with patch of forest
on limestone

- 73 *Centella asiatica*
common on bare coral of peak
- 74 *Dryopteris*
in rock crevices on peak
- 75 *Bidens pilosa* L.
on rock trail on peak, common
- 76 *Dryopteris*
on bare ~~coral~~ coral rubble
- 77 *Miscanthus floridulus*
dominant on large limestone
area on east (windward) side
of peak.
- 78 *Pisonia umbellifera*
common in forest on rough limestone

shrub 1 m. tall, flowers
coral red, lobes firm,
somewhat fleshy.

shrub 1 m. tall,
fruits mostly immature,
ripe ones bright red.

shrub, - 2 m. tall,
leaves smooth

small tree, flowers
white, fragrant.

flowers yellow.

475 m.

rhizome prostrate

clumps, 3 m. tall

small tree 4 m. tall, wood
very soft; leaves thick,
fruit immature, ~~is~~ subulate,
very sticky on ridges.

- 31779 *Polyscias grandifolia* Vahl.
common in forest
80 *Mucuna*
common in forest

- ✓ Feb. 23 - Garapan
around old warehouse
on flat coral sand and rubble
81 *Pluchea odorata*
occasional
82 *Catalpa longissima*
occasional, planted?

small tree 3 m. tall,
fruits turning purplish.
woody liana
climbing over trees,
flowers pale green.

shrub 2 m. tall, aromatic;
flowers dull pale lavender
tree 5 m. tall, flowers
white; ^{throat purplish with yellow ridge,} fruit pendent.

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1950

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殺菌整腸剤 「ナンポール」

「ナンポール」はツムクサ科に属する熱帯植物の有効成分を抽出したるものにして微かに芳香性酸味を有する赤紫色のアントシアニン系色素を基質に含有する錠剤なり。

「ナンポール」の全成分は未だ知らずと雖も既に数年の臨床試験と幾多の動物試験とに依り有効の正統な殺菌整腸作用を有するとして常に製法せしむるところにして而も何らの副作用なきは明白に立証せられて居る。

顕著なる殺菌性を有するを以て細菌性下痢即ち夜痢・赤痢・サマツ等の急性熱性下痢に對し本剤の投與は真に適切にして普通一時間乃至二時間にして自覚症状及び客観症状を消失し、明確に治癒の確證を認めるに至る。又結核性下痢にも連續服用により著しく効力を現はす。

適 應 症

1. 夜痢、赤痢、腸チフス、パラチフス、その他熱性下痢。
2. 肉類、魚貝類、其他食物中毒性下痢及赤痢。
3. 乳児の便秘及慢性腸炎加答兒及結核性下痢、忌阻。

用 法 及 用 量

1. 「液剤ナンポール」は一日三回一回錠（20cc アンプル入）、乳幼児は半量宛空腹時に服用し場合に依りては同一量服用するも差支べなし。
2. 「錠剤ナンポール」は一日三回一回錠宛、乳幼児は半量宛空腹時に飲湯にて服用す。
3. 「液剤ナンポール」「錠剤ナンポール」共に（若干の砂糖、シロップを和して服用する可）錠剤に依り直前に飲湯服用し同時に多量に服用するも副作用無なり。

使用上の注意

1. 胃酸過多症に起因する下痢には効力薄し。
2. アルカリ性薬物即ち重曹、マグネシヤ、硫酸アルミ、吸着剤カーボン活性白土等は化學的變化或は物理的變化を起して効力を減退せしむるを以て「ナンポール」服用の前後二時間……三時間以上他の製剤の服用を禁す。
3. 本剤服用の場合は下痢として「ヒヤシ油」その他この種下痢を治癒する必要な薬を、且つ之等の下痢を使用せざる方が回復を早め結果に於て極めて良好なり。

内 容

〔液剤ナンポール〕

ロニオ・ダイスカラ・ハンス抽出液		
		99.87(%)
酒 石 酸	0.05	
安息香酸	0.05	
屈 折 率	0.03	

〔錠剤ナンポール〕

ロニオ・ダイスカラ・ハンス抽出液		
		8.70(%)
酒 石 酸	0.30	
安息香酸	0.30	
屈 折 率	0.30	
乳 濁 度	60.00	
濁 度	30.00	

包

液剤ナンポール 20cc アンプル 3 管入

錠剤ナンポール

1.3 錠入

製 造 發 賣 元

東京都中央区日本橋区本町一丁目（南産社ビル附設）

南方薬品工業株式会社

殺菌整腸剤

「ナンポール」

「ナンポール」はツクサ科に属する熱帯植物の有効成分を抽出したるものにして微かに芳香性弱酸味を有する帯紫紅色のアントシアニン族色素配糖體を濃厚に含有する藥劑なり。

「ナンポール」の全成分は未だ審かならずと雖も既に數年の臨床實驗と幾多の藥理試驗とに依り藥效の正確鋭敏なる即効は臨床家をして常に驚嘆せしむるところにして而も何らの副作用なきは明白に立證せられて居る。

強烈なる殺菌性を有するを以て細菌性下痢即ち疫痢・赤痢・チフス等の如き熱性下痢に對し本劑の投與は眞に適切にして普通一時間乃至二時間にして自覺症狀及び客觀症狀を消失し、明確に治癒の轉機を認めるに至る。又結核性下痢にも連續服用により著しく効力を現はす。

適 應 症

1. 疫痢、赤痢、腸チフス、パラチフス、その他腸熱性下痢。
1. 肉類、魚貝類、其他食物中毒性腹痛下痢及蕁麻疹。
1. 乳兒の綠便急性及慢性腸加答兒及結核性下痢、惡阻。

用法及用量

1. 「液劑ナンポール」は一日三回一個宛（20cc アンプル入）、乳幼兒は半量宛空腹時に服用し場合に依りては同一量服用するも差支へなし。
1. 「錠劑ナンポール」は一日三回四錠宛、乳幼兒は半量宛空腹時に微温湯にて服用す。
1. 「液劑ナンポール」「錠劑ナンポール」共に（若干の砂糖、シロップを和して服用するも可）症狀に依り食間に數回連用し又同時に多量を服用するも副作用皆無なり。
但普通液劑は一アンプル、錠劑は四錠にて充分其の効果を舉るを常とす。

使用上の注意

1. 胃酸過多症に基因する下痢には効力薄し。
1. アルカリ性藥物即ち重質、マグネシヤ、珪酸アルミ、吸着劑カーボン活性白土等は化學的變化或は物理的變化を起して効力を減退せしむるを以て「ナンポール」服用の前後二時間……三時間とは之等の製劑の服用を禁す。
1. 本劑服用の場合には下劑として「ヒマシ油」その他の種下劑を用ゆる必要を認めず。且つ之等の下劑を使用せざる方が恢復を早め結果に於て極めて良好なり。

内 容

〔液劑ナンポール〕

ロエオ・デイスカラ・ハンス抽出液			
99.87(%)			
酒	石	酸	0.05
安	息	香	0.05
尿	素		0.03

〔錠劑ナンポール〕

ロエオ・デイスカラ・ハンス調厚エキス			
8.70(%)			
消	石	酸	0.50
安	息	香	0.50
尿		素	0.30
乳		糖	60.00
澱		粉	30.00

包 装

液劑ナンポール 20cc アンプル 3 管入 錠劑ナンポール 12 錠入

製 造 發 賣 元

東京都中央区日本橋兜町一ノ四番通（商民社ビル四階）

南方藥品工業株式會社

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